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An Analysis of the Relationships Existing between the Number and Kinds of Problems of Children and Their Degree of Intelligence

Herbert L. Sachs
Loyola University Chicago

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AN ANALYSIS OF THE RELATIONSHIPS EXISTING BETWEEN
THE NUMBER AND KINDS OF PROBLEMS OF CHILDREN
AND THEIR DEGREE OF INTELLIGENCE

by

Herbert Lee Sachs

A Thesis Submitted to the Faculty of the Graduate School
of Loyola University in Partial Fulfillment of
the Requirements for the Degree of
Master of Arts

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LIFE

Herbert Lee Sachs was born in Chicago, Illinois, May 1, 1929.

He was graduated from John Marshall High School, Chicago, Illinois, June, 1946, and from Roosevelt College, January, 1949, with the degree of Bachelor of Science.

From 1949 to the present writing the author has attended Loyola University, Chicago, Illinois, as a member of the Graduate School in the Department of Psychology.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION -- STATEMENT OF THE PROBLEM	1
II. REVIEW OF RELATED LITERATURE	5
III. ANALYSIS OF THE TESTS USED IN THIS STUDY	15
IV. PROCEDURE -- TEST ADMINISTRATION AND SCORING . .	24
V. STATISTICAL ANALYSIS OF TEST RESULTS	29
VI. SUMMARY AND CONCLUSIONS.	68
BIBLIOGRAPHY.	73
APPENDIX I	78
APPENDIX II	79

LIST OF TABLES

Table	Page
I. THE MEAN, MEDIAN AND MODAL SCORES WITH THEIR RELIABILITIES FOR THE DISTRIBUTION OF INTELLIGENCE TEST SCORES FOR ONE HUNDRED GRADE SCHOOL CHILDREN. .	31
II. THE MEAN, MEDIAN AND MODAL VALUES WITH THEIR RELIABILITIES FOR THE DISTRIBUTION OF TEST SCORES ON THE DETROIT ADJUSTMENT INVENTORY FOR ONE HUNDRED GRADE SCHOOL CHILDREN.	36
III. THE PROBLEM ADJUSTMENT MEAN TEST SCORE DISTRIBUTION FOR THE ENTIRE GROUP AND FOR EACH OF THE SUB-GROUPS, INDICATING THE SCATTER OF THE SCORES IN FIVE DIFFERENT LEVELS OF ADJUSTMENT	43
IV. THE STATISTICAL CORRELATIONS BETWEEN THE INTELLIGENCE OF CHILDREN AND THE NUMBER OF THEIR PROBLEMS, BASED ON ONE HUNDRED GRADE SCHOOL PUPILS	49
V. THE STATISTICAL CORRELATIONS BETWEEN INTELLIGENCE AND SIX DIFFERENT KINDS OF PROBLEMS, BASED ON A STUDY OF ONE HUNDRED GRADE SCHOOL CHILDREN	54

CHAPTER I

INTRODUCTION

STATEMENT OF THE PROBLEM

The original purpose of this thesis appears uncomplicated. Stated simply, it involves an investigation into the relationships between intelligence and the problems of children. Many problems appeared in undertaking this investigation; the careful and detailed analysis of these is discussed in succeeding chapters. This chapter is intended to clearly indicate the author's hypothesis and to demonstrate the nature of the problems involved in attempting to show the relationships between the intelligence and the number and kinds of problems of children.

The hypothesis which prompted this investigation is simple. The postulation is that the more intelligent individual has fewer problems because of the fact of his intelligence. The converse is also probable, that is, the lower the intelligence, the greater the number of problems of the individual.

The hypothesis as stated above is not complete. It may also be true that the more intelligent person has a greater number of problems to face, but can solve them more

rapidly and adequately because of his higher intellectual functioning. The variations or deviations from the hypothesis will be discussed in the chapters to follow.

The overall issue resolves itself into two components. The first component concerns the relationship between intelligence and the number of problems of children. The second portion of the investigation concerns the relationship between intelligence and the kinds of problems of children. These two aspects are treated both individually and collectively in the material to follow.

Two different tests were used to decide the nature of the above relationships. The tests were administered to the same individual, and then the individual reports were compared. The first test to be administered was the Primary Mental Abilities Test, designed for the eleven to seventeen age group. This test yields a measure of the intelligence of an individual. The intelligence is expressed both as a profile and as an I.Q.

The second test to be administered to the groups was the Detroit Adjustment Inventory. The title of the test is "Telling What I Do", and it involves 120 test items concerning problems which children commonly meet.

After administering these two tests to one hundred grade school children, the data were scrutinized so that both

the intelligence and the kinds and number of problems of children were available. Several statistical techniques were applied to the data so that the relationships between the number of problems of children and their intelligence, as well as the kinds of problems of children and their intelligence could be demonstrated.

Several important problems appeared in connection with the work. Among these was the problem of sampling, or selection of the group. In consideration of this problem, subjects were selected from twelve different grade schools and from five different social centers. One stratification in the selection of subjects resulted from selecting only children from the ages of eleven to fourteen. This necessarily meant that the majority of children selected were seventh and eighth grade pupils.

Another problem concerned the ability of the subjects to read the test materials. Cases of children who had known reading difficulties were omitted from this study, since these cases could invalidate the results. It was necessary to determine which children had reading difficulties, and to eliminate these from the study. A check was made with school authorities wherever possible to isolate these children with known reading difficulties, so that this variable would be controlled.

The problem of uniform test administration, while common to all psychological investigations, was unique in the

present study because of the small groups tested, and because each group had to be given two different tests. A fuller discussion of this problem is presented in Chapter IV.

Every attempt has been made in the present work to eliminate known variables which would invalidate the results of the experiment. The chapters to follow shall illustrate this more thoroughly.

CHAPTER II

REVIEW OF RELATED LITERATURE

After an extensive investigation of the scientific literature pertaining to this problem, it is felt that there is probably no single study of which this present work is an exact duplicate. There are many investigations concerning the nature of intelligence and intellectual behavior, as well as many investigations concerning the problems and adjustment of children. Few of the studies attempt to relate the two topics.

The review of literature contained in this chapter has been formulated with the intention of presenting a sample of the literature in condensed form so that the reader of this thesis will be acquainted with the general problems in this field. While some of the studies cited in this chapter pertain to the test instruments themselves, a fuller analysis of these is presented in Chapter Three.

The material to follow is, therefore, a highly selected group of articles, concerned with the most important aspects of the present investigation. The studies concerning the uses and application of the Detroit Adjustment Inventory and the

Primary Mental Abilities Test are presented first. The final portion of this chapter discusses those studies which have investigated portions of the basic hypothesis of the present investigation.

Baker has attempted to present a concise picture of the characteristic traits of exceptional children (children of high intelligence).¹ In the investigation the Detroit Adjustment Inventory was used along with case study material. The findings of the test and the case study methods yielded the following conclusions: (1) the exceptional child requires training in such things as leadership and responsibility; (2) the exceptional child likes to take the initiative in school matters, and particularly likes to develop his own school projects; and (3) it was found necessary to maintain a sense of school loyalty in these children.

Baker and Traphagen performed a thorough investigation of child behavior adjustment cases, and described the use of the Detroit Adjustment Inventory as a diagnostic tool for revealing problem areas.² Although there were no statistical

1 H. J. Baker, "An Experiment in the Education of Gifted Children," Journal of Exceptional Children, IX, January, 1943, 112-114 and 120.

2 H. J. Baker and V. Traphagen, The Diagnosis and Treatment of Behavior-Problem Children, The MacMillan Company, New York, 1935.

figures available in connection with the results of the study, the authors both agreed that the Detroit Adjustment Inventory satisfactorily demonstrated the areas about which the children had serious problems. The scope of the test included health problems, physical defects in hearing, speech and sight, muscular defects, personal difficulties, eating and sleeping difficulties and play adjustments.

In another investigation Baker described the differences between the dull and the bright pupil.³ The differences in the groups of children were studied with emphasis on their general intelligence level, special abilities, reading, writing, speech and spelling differences, and differences in the appreciation of music and of fine arts. The Detroit Adjustment Inventory was used in this work to supplement case history and school records. The number of cases in the study was not reported.

Brown and Blakey studied non-verbal group tests of intelligence to determine their reliabilities and validities.⁴

³ H. J. Baker, Characteristic Differences in Bright and Dull Pupils, Public School Publishing Company, Bloomington, Illinois, 1927.

⁴ A. W. Brown and R. Blakey, "A Preliminary Report on the Development and Standardization of a Non-Verbal Test at the High School Level.," Journal of Educational Psychology, XXXII, 1941, 113-123.

The study was performed in cooperation with the Institute for Juvenile Research. High school students were the subjects. Two of Thurstone's non-verbal group tests were included in the study. These are: the circle-reasoning test and the form reasoning test. Brown and Blakey reported reliabilities of positive .94 and positive .97 for these tests. Both of the authors agreed that the tests were reliable, and could be used with confidence.

Shanner has made a very thorough study concerning the reliability of the Thurstone Primary Mental Abilities Test.⁵ Shanner wanted to know if Thurstone's test could yield a reliable diagnosis of an individual's abilities. One hundred and thirty-five twelfth grade boys were the subjects for the investigation. Odd-even type of reliability calculations were performed for each of the subtests. The results showed that the overall reliability of the entire test was above .92 (positive).⁶ Shanner concluded that the test in its present

⁵ W. M. Shanner, "A Report on the Thurstone Tests for Primary Mental Abilities," Educational Records Bulletin, XXVII, 1939, 54-60.

⁶ The sub-test reliabilities reported by Shanner are: Perception, positive .982; Number, positive .969; Verbal, positive .958; Spatial, positive .991; Memory, positive .870; Induction, positive .900; and Deduction, positive .911. No probable errors were presented.

form is accurate in both judging and predicting performance. Further refinements of the subtests should yield even higher total reliability coefficients.

Thurstone and Thurstone have written a volume concerning the factor theory of intelligence and the method of standardizing the Primary Mental Abilities Test.⁷ The discussion of the factor theory of intelligence demonstrates the reasons for the composition of the Primary Mental Abilities Test. The tests were standardized on a group of 1,154 grammar school children from twelve different Chicago public schools.

Sixty different tests were originally selected in the standardization procedure. Of these, twenty-one were selected for their high reliability and validity. The final elimination process yielded six different tests which were then termed the "primary mental abilities."

In another investigation concerning the reliability of the Primary Mental Abilities Test, Jacobs studied ninety-seven tenth grade boys and girls.⁸ The results were very

7 L. L. Thurstone and T. G. Thurstone, "Factorial Studies of Intelligence," Psychometric Monograph, Psychometric Society, the University of Chicago Press, Chicago, Illinois, 1941.

8 Robert Jacobs, "The Reliability and Intercorrelation of the Scores on the SRA Primary Mental Abilities Test," Educational Records Bulletin, XXVII, 1948, XXXIX, 49-58.

similar to those reported by other workers, that is, the Thurstone tests were found to have reliabilities of over positive .90, with a range from positive .86 to positive .98 for the subtests.

Gerlach has attempted to describe a relationship which he has discovered between psychometric test patterns and particular types of child maladjustment.¹⁰ The study attempted to relate the intelligence of the child (as measured by an intelligence profile) to the particular personality type of the child. Actually, Gerlach succeeded in partially relating three different intelligence groups (low, average and high, according to the I.Q. range) to an inadequate measure of social aggressiveness of the children. Gerlach's psychometric methodology was not precise nor adequate and thus his work and conclusions are considered indefinite.

Rogers and Peters, in a study of college women, applied several of the theoretical principles which prompted the present investigation.¹¹ Since the work of these men involved

¹⁰ M. Gerlach, "A Study of the Relationship Between Psychometric Patterns and Personality Types," Child Development, X, 1939, 269-278.

¹¹ D. C. Rogers and E. F. Peters, "An Analysis of Adaptation of the Bell School Inventory with Respect to Student Adjustment in a Women's College," Journal of Applied Psychology, XXIV, 1940, 455-462.

the use of college women as subjects, their results differ from the results of the present thesis. Their work, however, is important to this thesis because of the theoretical background for their investigation and because of their technique, which is highly similar to the present method.

The study sought to discover those attitudes towards school adjustments which are considered poor or which tend to hamper good adjustment. The Bell Adjustment Inventory was administered, and Rogers and Peters found that students who made low scores (showing good adjustment) were actually well adjusted in school, liked their teachers and enjoyed classes. Those students who made high scores on the test (showing lack of adjustment) actually were poorly adjusted in school and disliked their teachers. The Bell Inventory contains twenty-six items which are answerable by checking yes, no or a question-mark (indicating uncertainty). The study differs from the present investigation in that: (1) it used a stratified intelligence group (all of the subjects were college level students); (2) it used a higher level scale as its adjustment inventory; and (3) it failed to relate intelligence to the number or kinds of problems of the subject.

The present thesis uses the same type of technique as that of Rogers and Peters with the exception of the use of the

Detroit Adjustment Inventory (a simplified scale more suitable for children).

Marsh used Mooney's Problem Check-list in an attempt to isolate the important problems of the college woman.¹² The most serious problems were in the fields of personality, academic acceptance, and social areas. The least troublesome problems concerned physical health and family situations. It will be interesting to note that the results of the present study differ from the results of Marsh's study. It must be concluded that the difference in the two investigations is due to the difference in the subjects used, not in the basic methodology. Certainly, maturation and experience account for a good deal of shifting in the problem areas. The factor of academic acceptance, however, which is so important to the grade school child, was placed second in prominence in the investigation by Marsh. Pintner and Lev would agree that this is a direct carry-over from the grade school years in which there has been an unnecessary emphasis on routine matters.¹³

¹² G. J. Marsh, "The Worries of the College Woman," Journal of Social Psychology, XV, 1942, 335-339.

¹³ Pintner and Lev, "Worries of School Children," Journal of Genetic Psychology, LVI, 67-76.

Lunger and Page present a most interesting study which is of particular importance because of the conclusions.¹⁴ The study used college women as its subjects, and is very similar to the present investigation in that it used both an intelligence and a problem adjustment scale. The method consisted of matching the scores on the two tests for each subject to see if any definite trends existed within the high or low intelligence groups. The American Council of Education tests were used to get an intelligence score, and the Bell Adjustment Inventory was used to obtain an adjustment score.

It is the conclusions of Lunger and Page which are most valuable:

"There is no relation between the Bell Adjustment Inventory and the American Council of Education tests of intelligence. The correlation between intelligence and the incidence of worries was negligible." ¹⁵

Lunger and Page state as a final part of their conclusions that those subjects who rated themselves low in superiority areas tended to rate themselves high in maladjustment scores. The

¹⁴ R. Lunger and J. D. Page, "Worries of College Freshmen," Journal of Genetic Psychology, XXIII, 1939, 602-607.

¹⁵ Ibid., 604.

conclusions of their work differ from the conclusions of the present study, which is probably due to the difference in the subjects which were used in the two studies.

Remmlein examined seven hundred cases of grade school children and found that the correlation between intelligence and scholarship was less than a coefficient of positive .50.¹⁶ The experimental investigation sought to discover the possible reasons for this low coefficient of correlation. Remmlein was forced to conclude negatively that extra-curricular activities were not the cause of the low correlation, while the true cause remained unknown.

The remainder of the literature in this field considers essentially the same type of material as has been reported in the studies already reviewed. The reader will note that the majority of the studies concern either behavior problems or intelligence problems, but rarely a relationship between the two.

16 M. K. Remmlein, "Scholastic Accomplishment Affected by Intelligence and Participation in Extra-Curricular Activities," Journal of Applied Psychology, XXIII, 1939, 602-607.

CHAPTER III

ANALYSIS OF THE TESTS USED IN THE STUDY

The primary purpose of this chapter is to summarize the reliability, validity, objectivity and degree of standardization of the two different tests administered to the subjects upon which this thesis has been based. The evidence for much of the conclusions in this chapter has already been presented in Chapter Two. A second purpose of this chapter is to acquaint the reader with the physical composition of the two tests.

"Reliability" is the term used to indicate that repeated trials of a test will yield very closely similar results.

"Validity" is the term designating the fact that a test does measure whatever factor or factors it purports to measure.

"Objectivity" of a test indicates that it measures with accuracy those factors it purports to measure. A test is "standardized" if the procedure is so established that different qualified persons may administer the test and obtain similarly accurate results.

The norms for the Thurstone Primary Mental Abilities Test were established after an examination of eighteen thousand

junior and senior high school students. The test supplies the examiner with scores both in terms of percentile rank and I.Q. The reliability of the test was computed by the Spearman-Brown method.¹

The reliability of the entire test is above positive .90. From the above data, as well as from an examination of Thurstone's statistics concerning factor analysis methods and product moment correlations,² it is concluded that the Primary Mental Abilities examination gives a valid, reliable and standardized measure of the intellectual capacities of the individual child.

A basic assumption of Thurstone in the composition of the Primary Mental Abilities examination is the theory that intelligence is not a unitary trait, but a composite of several factors. Five of these factors have been isolated and included in the intelligence test developed by Thurstone. These include the tests of arithmetic, verbal meaning, space, reasoning and word fluency.

1 The reliability for the subtests are as follows: Verbal-Meaning, positive .92; Space, positive .96; Reasoning, positive .93; Number, positive .89; and Word-Fluency, positive .90.

2 "Examiner Manual for the SRA Primary Mental Abilities" the intermediate form for ages eleven to seventeen, revised issue for August, 1949.

Three forms of the SRA Primary Mental Abilities examination are available. These are the forms for: (1) age group 5-7; (2) age group 7-11 and (3) age group 11-17. The age of the subjects in the present study dictated the use of the 11-17 age group form of the SRA Primary Mental Abilities examination.

The Thurstone test of intelligence is standardized in its administration and scoring. The procedure for these is contained in a printed booklet issued in conjunction with the test. The test is valid and objective to the extent that Thurstone's concept of intelligence is correct. The validity of the test may be questioned on the basis of the fact that the true nature of intelligence is not established. This is a criticism, however, which may be directed toward all tests of intelligence.

The Detroit Adjustment Inventory yields a measure of the number and kinds of problems of children. It is necessary to examine the reliability, objectivity, validity and standardization of this examination. One of the features of the test is that it offers more than a yes-no type of response. The child can select from five different degrees of responses for each item of the test. From the degree of seriousness of the responses selected by the child the examiner can score the test, and obtain an accurate picture of the number and kind of prob-

lems which the child expresses for each of twenty-four different problem areas. Baker suggests twenty-four different minor problem areas of the test, and twelve central problem areas. This classification has been condensed into six chief problem groups for the purposes of this study.

The first group of problems was gathered under the title "health" or "physical health". These included such matters as sickness, heart trouble, height-weight problems, skin trouble, sleeping-eating problems, self-care (hands, face washing) nail biting, dizzy spells, etc.

The second group of problems was captioned "Emotions" or "Emotional Problems". In these were included such factors as: fears, fear of dark, being alone, high places, being with strangers, anger, temper tantrums, breaking things, fits, quarrels, hurting others, pity, helping others, feelings toward blind or sick people, helping the poor, etc.

The third group of problems was captioned "Extroversion" or "Extroversion-Introversion" or "Personality Factors." These included such things as: liking crowds, mixing with people, liking parties, being shy, public speaking, feelings about clothes, feelings about school marks, bragging, superiority feelings, being a leader, making decisions, optimistic attitudes, etc.

Fourthly, the author grouped problems concerning "Family" or "Family Adjustments" or "Home Life" which included such factors as: home status, speaking English in the home, father working, parent's health, friends at home, books or magazines in the home, siblings in family, punishment methods, favorite child in family, arguing at home, amount of liberty, etc.

A fifth problem group was titled "School" or "School Adjustments" or "School Problems" and it includes such matters as: writing on desks or walls, whispering in class, attitude toward study, liking teachers, truancy, losing at games, breaking rules, sharing with others, doing right and wrong, telling the truth, giving charity, etc.

The sixth and last group of problems was titled "Personal" or "Personal Adjustments." Under this topic were included many miscellaneous items, all referring to personal matters of the individual, such as: friends, dates, delinquency, stealing, lying, sportsmanship, hobbies, radio, books, magazines, future vocational choice, opinions on goal in life, etc.

The Detroit Adjustment Inventory is a comparatively new test. It is now in its third year of use, and has been used extensively at the Detroit Psychological Clinic. The test was given to a group of three thousand pupils. Besides the quantitative interpretation, Baker also suggests several qualitative

interpretations of his test. Remedial suggestions are offered for each of the twenty four problem areas which are present in the test itself.³

Honesty is a basic essential in the Detroit Adjustment Inventory, and Baker shows that the child taking the test is encouraged to be honest. He offers three reasons to show why the pupils maintain their honesty during the examination: (1) the instructions are worded in such a manner that the pupil is not certain just how much the interviewer knows about him already; (2) there is a large amount of inherent honesty in the great majority of people, and it tends to be practiced when people seem to be genuinely interested in helping to bring about a better understanding; (3) the items are worded in such a definite and personal way that the pupils find it difficult to avoid giving the answer that is appropriate for them.

Since there are 120 items on the test, each with five possible answers, the child must read six hundred different phrases before he can complete the test. This brings forth the problem of reading difficulties as regards the validity of the Detroit Adjustment Inventory. Baker attempts to cope with this problem in the explanation of the use of his test.

³ Harry J. Baker, "Teacher's Handbook for the Detroit Adjustment Inventory," Public School Publishing Company, Bloomington, Illinois, 1941.

Children who cannot read the items on the inventory or who cannot read or comprehend all of the items on the inventory will be prone to guess at the responses. In such cases, the distribution of answers will follow such an errant pattern from the norm for the age level of the subject, that the examiner will necessarily be aware of the incident. Cases of guessing were omitted from this thesis.

Another alternative solution for the child who cannot read well is to lose interest in the test and, therefore, fail to mark several of the items. The examiner will discover this before the child is allowed to consider his test as completed and, again, such cases will be discarded, as they actually were discarded from this thesis. Another method followed by the poor readers is to score the items in series; i.e., they will mark the first three to five items as answer "a", the next three to five items as answer "b", the next group as answer "c", etc. An alternative choice for the poor reader is to mark his answers in a "rotation series"; i.e., the first answer is scored "a", the second "b", the third "c", etc. Again, these cases were discarded from the present thesis.

To further aid the examiner in overcoming reading difficulties, the children are urged to ask questions at any time during the test. Several words needed frequent explanation or

definition. Common among these were "temper tantrums"; "awkward"; "charity" and "detention". A further aid is cited by Baker: "The items are made very specific and the wording, which is in simple, popular style, makes frequent use of the pronoun 'I' in describing the situation."⁴

In all cases where feasible the child's school record was checked and reading handicap cases omitted from this present study. However, only about fifty per cent of all the subjects could thus be checked, as, in many cases, the school records were not available for the child.

The Detroit Adjustment Inventory is not intended to be a substitute for a case study or personal interview. It is a method for obtaining an individual's own evaluation of his status. The individual himself judges which problems are most serious, and which are less serious. By this method, localization of problem areas was possible.

There are no reliability coefficients available for the Detroit Adjustment Inventory. The reasons for this are twofold: (1) the test given to the same individual more than once or after a period of time elapses will not give the same

⁴ H. J. Baker, "Teacher's Handbook for the Detroit Adjustment Inventory," Public School Publishing Company, Bloomington, Illinois, 1941, 3.

results, inasmuch as the individual is older, has had new experiences and consequently has new problems to meet; (2) there is only one form of the test available at present.

The validity of the test was established by a comparison of two groups of children. The first group consisted of a "behavior-case" group of sixty-one boys and girls. The second group consisted of twenty-seven boys and girls who were rated by their teachers as above average or ideal in adjustment. The actual statistical difference between the two groups after the administration of the test was 6.1 times the standard error of the difference. Baker concludes: "Any difference which is three or four times the standard error is significant." This means that "the test definitely and satisfactorily distinguishes between groups of well adjusted and poorly adjusted pupils."⁵

The Detroit Adjustment Inventory, although notably incomplete and lacking in adequate reliability and validity data, was used in the present investigation as a research tool, since it seemed to be the best available test for the age level of the subjects of the study and for the purpose of the investigation.

⁵ Baker, "Teacher's Handbook for the Detroit Adjustment Inventory", 1941.

CHAPTER IV

PROCEDURE--TEST ADMINISTRATION AND SCORING

There are many facts concerning the procedure in both the administration and scoring of the tests which must be clarified if the reader is to comprehend adequately the information concerning the statistical results. This chapter is intended to clarify all facts concerning the manner in which the tests were administered. In order to understand the statistics which are to follow, it is essential that the reader become familiar with the scoring of the tests.

At no time were hints or suggestions given to the subjects, and timing rules were observed strictly. The testing room itself was kept closed during the entire testing period, and a sign was posted outside the door to avoid interruptions. The author of the thesis was the only proctor during the administration of the tests, inasmuch as the groups were small. No cases of cheating, copying or accidental borrowing of answers were encountered.

Following the administration of the intelligence test, the children were given the Detroit Adjustment Inventory. The

personal nature of the test requires the individual to answer the items in a manner which yields to the examiner an accurate picture of the number and kinds of problems of that individual. The same procedural rules were observed during the administration of the intelligence scale with certain exceptions. The children were instructed to work as rapidly as possible, but there was no time limit. The children were also encouraged to ask questions if they did not understand the items on the test or some of the words of the inventory.

It was necessary to observe strict silence during the administration of the Detroit Adjustment Inventory, since the items were of a personal nature. All too often the children were inclined to ask one another the answers they each had given to some of the items. The undesirable implications of allowing the children to do such a thing are obvious to anyone acquainted with correct testing techniques and principles, particularly when one realizes that one of the objectives of the administration of this test was to obtain an individual adjustment picture.

The examiner instructed the children that no one would have access to the test information (not even the school authorities). This was felt necessary, in order to insure complete honesty and to ban some of the social stigma attached to giving personal information in record blank form.

The one hundred members of the group were not tested all at once, nor were both tests administered on the same day. Several reasons dictated this type of procedure. Groups of about twenty to thirty pupils were tested, since it was found most practical to supervise this size group. It was necessary to give the two tests on different days because of the length of time required in the administration of the tests. While this procedure perhaps introduces a certain amount of error due to the fact that the same child may have different capacities on some days because of changing physical, emotional and mental attitudes, it was felt that this would be less of an error than the one which would have been introduced had the examiner determined to administer both tests on the same day. Lack of interest and fatigue were avoided by this method.

The physical composition of the Detroit Adjustment Inventory requires explanation. The inventory consists of 120 items, each of which has five possible answers of varying degrees of seriousness. The pupil's task is to check the answer which conforms most closely to the way he himself judges his feelings. The pupils are not aware that there are certain areas in the test which center about definite problems. The six of these categories or areas in which the 120 items fall include: (1) physical health problems, (2) family problems, (3) school problems, (4) personal problems, (5) emotional prob-

lems, (6) personality factors, particularly extroversion-introversion traits.

Depending on the answers which the pupils select, the items on the inventory are rated with point values of five, four, three, two and one. By checking the item which merits a five point answer, the pupil receives a score of perfect adjustment on that problem. The four point value answers are of less value, the three point value answers show neither good nor poor adjustment. By checking those answers which have only two or one point rating values, the pupils show themselves to be concerned over those particular items. As there are 120 items on the entire scale, there is a possibility of a weighted score of six hundred (perfect adjustment) and a minimum weighted score of 120 (perfect maladjustment). A pupil checking a large number of five or four point weighted value answers is marked as one who is well adjusted. Conversely, a pupil checking a large number of one or two point weighted value answers is scored as a pupil who has many problems or much concern expressed in those areas. This method also reveals which of the six general areas itemized above are most troublesome for the individual, and which of the areas are least troublesome. A rather complete picture of the number and kinds of problems of the child is obtained in this way.

After the administration and scoring of the two tests the next step in the procedure was to compare the two scores for each child. To accomplish this, three groups were isolated according to intelligence, as follows: (1) low group, I.Q. range 64-89, twenty-five cases; (2) average group, I.Q. range 90-110, forty cases; (3) high group, I.Q. range 111-145, thirty-five cases. A total of one hundred subjects comprised the entire group, with an overall I.Q. range from 64-145.

Statistical data were next gathered concerning the intelligence test scores, and concerning the problem test scores. These data are presented in the following chapter.

CHAPTER V

STATISTICAL ANALYSIS OF TEST RESULTS

The present chapter is designed to present an account of the statistics used in deriving the conclusions and results of this thesis. In attempting to show the relationships and inter-relationships among the various factors, the language of the chapter must become somewhat technical.

Extensively used throughout the development of the statistical correlations was the Otis Correlation Chart, by Arthur S. Otis. Several reasons prompted the use of this method rather than other methods.

The Otis Correlation Charts provided a simplified group of statistical methods which the student can use with accuracy. The physical makeup of the chart provides for several "checks" against errors. Further, the Otis Chart is a development of the product-moment type correlation popularized and developed by Pearson. One will arrive at exactly the same result as if he had chosen to use the longer Pearson method. Since twenty three correlations are presented in this paper, the Otis method seemed a more natural choice. Its further use of the

product moment type correlation favored its employment in this thesis, since this type correlation implies directly that one factor in the variables is dependent upon another of the variables. The chart also provides space for finding the probable error of the coefficient of correlation, and the various standard deviations (if these are desired). Thus, after completing a correlation using this chart, the research worker has obtained a concise group of the vital information which he is seeking.

Holzinger's Form for the Correlation Coefficient and Ratios was used in all cases where non-linear correlation ratios were in evidence.¹ The Holzinger chart provides three numerical checks against possible errors in the calculation, and also provides space for the calculation of the linear coefficient of correlation.

1 Formula:

$$N_{xy} = \sqrt{\frac{\left[\frac{(\sum x^2)}{N} \right] - \sigma_x^2}{\sigma_x}}$$

$$N_{yx} = \sqrt{\frac{\left[\frac{(\sum y^2)}{N} \right] - \sigma_y^2}{\sigma_y}}$$

Source: Garrett, H. E., Statistics in Psychology and Education, Longmans, Green and Co., 1950, 370.

TABLE I

THE MEAN, MEDIAN AND MODAL SCORES WITH THEIR RELIABILITIES
FOR THE DISTRIBUTION OF INTELLIGENCE TEST SCORES FOR
ONE HUNDRED GRADE SCHOOL CHILDREN

I.Q. Range of Group	Mean I.Q.	Standard Deviation	Standard Error	Median I.Q.	Standard Error	Modal I.Q.
Entire Group 100 Cases 64-145	102.69	18.40	1.85	103.50	2.32	113.00
High Group 35 Cases 111-145	122.63	9.56	1.64	121.00	2.05	113.00
Average Group 40 Cases 90-110	99.93	6.40	1.02	99.50	1.28	104.00
Low Group 25 Cases 64-89	79.20	6.13	1.25	81.00	1.57	81.00

In comparing the mean I.Q. for each of the groups presented in Table I, it seems clear that there are differences between the I.Q.'s of the different groups. The difference between the mean I.Q. for the low group and the mean I.Q. for the average group was twenty points, while the difference between the low and the high groups was forty-three I.Q. points. The difference between the high and the average I.Q. groups was twenty-two points.

The differences in the I.Q. scores for the median values for each of the groups were as large as the differences for the means cited above, but the modal scores did not reflect such distinct differences. The modal score for the entire group (113.00) is ten points above the mean and nine points above the median for the entire group.

The modal score for the high I.Q. group was 113.00, which is nine points below the mean and eight points below the median for that group. Apparently there is a cluster of several scores about the I.Q. of 113 in the high intelligence group, but there were also several very high I.Q. scores in the same group

which tended to raise the mean and the median for the group. This does not suggest that the mean is inaccurate, but it does give a clearer view of the distribution of intelligence scores within the high I.Q. group.

The modal scores for the low and average groups are essentially in agreement with the mean and the median values for each of these groups. A difference of two or three points does not appear important enough to warrant further discussion.

Since the mean I.Q. scores for the groups indicated that they were numerically distinct, these scores were the ones used in discussing the entire group and the sub-groups in the remainder of the statistical analysis. Critical ratios between these groups were not calculated, because the differences between the groups were evaluated in terms of the numerical I.Q. point differences. The fact that each of the measures of central tendencies for each of the sub-groups indicates differences of twenty I.Q. points or more between the groups is important, as is shown by an inspection of Table I.

It should be noted in Table I that the standard deviation for the mean score for the entire group is 18.40. This indicates that there was a large range of I.Q. scores, approximately thirty-seven points (in terms of the I.Q. this meant

that the majority of the scores for the entire group fell within the range 80-125).

The standard deviation scores for each of the sub-groups indicate that the individual scores within each group were highly variable. Thus, for the distribution of test scores for children of high intelligence it is noted that the mean of all I.Q.'s is 122.63, but the standard deviation indicates that there was considerable variability for this group.

The standard deviation values for the groups tend to substantiate the statement that the distribution of test scores approximates the normal distribution curve. If this is accepted as true, then the differences between each of the sub-groups of twenty points (and in some cases slightly more than twenty points) in terms of the actual I.Q. point values, tend to indicate further that the three groups are distinct.

The standard error scores which accompany the mean and the median values in Table I indicate the extent to which these scores are affected by errors of measurement and by chance errors related to faulty selection of the groups on

which the scores have been based. If the standard error scores were consistently high, then there would be a definite indication that the groups on which this study is based were improperly selected, or that some other error is invalidating the measurements.

The standard error scores for each of the groups in this study were low. The highest standard error of the mean was 1.85 for the entire group of one hundred cases.

The comparatively high standard error for the mean of this group is explained by the similarly high standard deviation for this group. The wider range of scores for the group seems to affect the accuracy of measurement more so than the smaller ranges of scores for the sub-groups. In other words, one would expect to find a greater number of errors of measurement (a larger standard error) if the range of scores on which the measurement is based is large. The implication of Table I, noting the consistently low standard error scores for each of the measures of central tendency, is that the differences between the values for this study and the true values from a larger sample of the population are not great.

TABLE II

THE MEAN, MEDIAN AND MODAL VALUES WITH THEIR RELIABILITIES
FOR THE DISTRIBUTION OF TEST SCORES ON THE DETROIT
ADJUSTMENT INVENTORY FOR ONE HUNDRED
GRADE SCHOOL CHILDREN

Group	Mean Score	Standard Deviation	Standard Error	Median Score	Standard Error	Modal Score
Entire Group 100 Cases	454.34	32.69	3.29	454.50	4.12	449.00
High I.Q. Group, 35 Cases	465.94	30.75	5.27	471.00	6.61	473.00
Average I.Q. Group, 40 Cases	448.23	31.31	5.01	452.00	6.29	449.00
Low I.Q. Group, 25 Cases	447.88	33.01	6.74	447.00	8.44	440.00

Table II contains the basic distribution of problem adjustment test scores for the total group of one hundred cases and for all of the intelligence subgroups. Standard deviation calculations are presented for the mean scores, while standard error calculations are presented for the mean and the median scores.

The data for the mean scores of the group show that there were no differences between the low intelligence and the average intelligence groups for their scores on the adjustment inventory. The mean scores for all of the groups tend to indicate that there is very little difference between the problem adjustment test scores for any of the different intelligence groups.

An examination of the median scores for the entire group and for the sub-groups indicates that there is very little difference between the different intelligence groups' scores on the problem adjustment test. The greatest difference in the median score is twenty-four points between the high and the low intelligence groups, while the difference in the median between the average and the low group was only five points. Therefore, the median seems to indicate that there are little or no differences between the different intelligence groups' scores on the problem adjustment test.

Because of the essential similarity of the mean and the median scores for all of the sub-groups, the modal score differences take on added importance.

The difference between the mode of the high and the low intelligence groups was thirty-three points, while the difference between the low and the average groups was nine points. Similarly, the difference between the modal scores for the high and the average intelligence groups was twenty-four points. These are the largest consistent point differences between each of the groups which have been demonstrated by any of the measures of central tendency. These differences in modal scores tend to suggest that there are significant differences between the different intelligence groups' scores on the problem adjustment test.²

The measures of central tendency presented in Table II indicate that the extreme scores on the problem adjustment inventory (those scores which show very good or poor adjustment) are most important. When the scores on the test are averaged, as is done in the calculation of the mean, the extreme scores

2 The importance of the extremes in the distribution of cases in this study shall be further demonstrated by the analysis of Tables IV and V in this chapter.

on the test lose their importance. The median is also unsatisfactory from this point of view, as it measures only central tendencies, and obscures the importance of the extreme scores within the range.

The modal score, however, is the measure of the greatest grouping of a particular score within any range and, therefore, in the case of the distribution of test scores for the groups studied in this thesis, it emphasizes the extremities of the distribution of scores. In the data in Table II, the modal scores are therefore considered to be more important than the other measures of central tendency.

To test the significance of the differences in the problem adjustment test scores of the different groups, critical ratios were calculated.³ The critical ratio value between the whole group and the high group was 1.87, which is significant between the five per cent and ten per cent level of confidence. The critical ratio between the whole group and the average group was 1.02, which is significant between the five per cent and the

3 Formula:

$$\text{Critical Ratio} = \frac{\text{Numerical difference between two means}}{\text{S.E. of the difference between two means}}$$

Source: Garrett, H. E., Statistics in Psychology and Education, Longmans, Green and Co., 1950, 199,

ten per cent level of confidence. These critical ratio calculations indicate that the whole and the average intelligence groups of this study tend to be distinct. However, the statistical differences between these groups were not significant at any point between the one and the five per cent level of confidence.

The critical ratio between the whole group and the low group, however, was 0.86, which falls at less than the fifty per cent level of confidence.

The critical ratios between the high group and the average group, and the high group and the low group were 2.44 and 2.11 respectively. These values fall at approximately the two per cent level of confidence in each case. The critical ratio between the low group and the average group, however, was 0.04, which falls at less than the fifty per cent level of confidence.

These critical ratio calculations indicated that the problem adjustment test scores for the average and the high intelligence groups were significantly distinct. The low intelligence groups' scores on the problem adjustment test were not significantly distinct from the scores of those with higher intelligence. This means that statements concerning the number of problems of children with low intelligence would necessarily be limited.

The standard deviation scores for each of the groups are high. This is what one would expect, since the range of the test scores was so great. While the mean score for the entire group was 454.34, the range of the majority of cases was from approximately 420 to 487. Thus, there was wide variability in the possible test score of any one member of the group, and the mean score of 454.34 is meaningful only in relation to the high standard deviation which accompanies it. The range of the standard deviation scores shows that individual records on the problem adjustment inventory ranged from poor adjustment to excellent adjustment, in all of the six central areas on the test.

The wide discrepancies between an individual's score on the problem adjustment test and the mean score for that individual's intelligence group foreshadows the fact that the standard error scores for the measures of central tendency should be large.

The standard error scores for the mean of each of the groups range from 3.29 to 6.74. The standard errors are high, and indicate that miscellaneous chance errors may be operating which yield incorrect measures for the mean and the median scores for the groups in Table II.

The standard error scores also indicate that, if another group were selected from the population (of the same age and educational levels) the likelihood that their scores on the problem adjustment inventory would be identical to the scores obtained in this study is not very great. There quite probably would be a slightly different distribution of the scores. In other words, the standard error scores are used as indications of the fact that the distribution of problem adjustment scores obtained from this group may not be obtained if another sample of one hundred cases was selected from a similar population.

While the standard errors tend to suggest that the mean is the more suitable measure to use in this type of analysis, the modal scores are actually most important, inasmuch as they indicate most clearly the differences between the extremes of the distribution of test scores; i.e., those children of very high and very low intelligence.

TABLE III

THE PROBLEM ADJUSTMENT MEAN TEST SCORE DISTRIBUTION FOR THE ENTIRE GROUP AND FOR EACH OF THE SUB-GROUPS, INDICATING THE SCATTER OF THE SCORES IN FIVE DIFFERENT LEVELS OF ADJUSTMENT

Interpretation of Responses	Mean Number of Responses			
	Whole Group, 100 Cases	High I.Q. Group 35 Cases	Average I.Q. Group, 40 Cases	Low I.Q. Group 25 Cases
Excellent Adjustment	44.86	48.26	42.88	43.28
Good Adjustment	30.11	31.11	29.93	29.00
Neutral Response	26.05	25.49	26.93	25.44
Poor Adjustment	11.64	10.09	12.40	12.60
Serious Problems or Maladjustment	7.21	5.06	7.88	9.16

Table III summarizes the distribution of the answers on the problem adjustment test in each of five different levels of adjustment for the entire group and for each of the sub-groups.

A child who shows scores on the Detroit Adjustment Inventory very similar to those presented in Table III under the scores for the average intelligence group would be considered as an "average" child for comparison purposes with reference to the group studied. A sample case taken from the data may illustrate this point more clearly. A child whose scores on the inventory showed forty-four answers to be in the perfect adjustment bracket, thirty responses in the good adjustment area, twenty-seven in the neutral area, eleven in the poor adjustment area and eight in the serious problem group, would be considered as well adjusted with reference to the degree of adjustment found in the average intelligence group observed in this study. Any small deviation from the mean numbers presented in Table III would still be considered in the same light. However, when a child's record shows thirty responses showing excellent adjustment, thirty showing good adjustment, seventeen showing neutrality, twenty-two showing poor adjustment and twenty-one responses showing serious problems, the examiner knows that the child is deviating from the scores of the group studied herein, and can investigate further to discover the area or areas about which the child may possibly be disturbed.

Table III indicates the number of problems and the distribution of problems which is the mean amount for the high, average and low intelligence groups. Note the very close similarity between all of the scores and between the scores for the whole group. The high intelligence group's test score distribution was closely similar to the problem adjustment test scores for the whole group studied. While there seem to be slight differences between the scores in the "excellent adjustment", "poor adjustment" and "serious adjustment" areas, basically the pattern of the distribution of the scores for the entire group and for the high intelligence group appears similar. No marked discrepancies are evident.

Table III also indicates the number of problems and the distribution of problems which is the mean amount for the average intelligence group. In a comparison of the columns of Table III for these groups, it appears clear that the distribution of the test scores is almost identical in all five cases of adjustment. The conclusion is that there is little difference between the scores on the problem adjustment inventory for the average intelligence group and the scores on that test for the entire group.

The last column in Table III indicates the number of problems and the distribution of problems which is the mean amount for the low intelligence group. Note the close similarity

between the distribution of test scores for the low intelligence group and the scores for the entire group. It seems clear that there is very little difference between the distribution of test scores for the entire group and for the low intelligence group. Discrepancies in mean differences of one answer or of a fraction of one answer do not appear important.

The last point to be noted in connection with Table III is that the differences between the high and the low intelligence group test score distributions are very slight. The largest difference between the groups is that of five points, in the area of "excellent adjustment," where the high intelligence group appears to have a greater number of answers than those of lower intelligence.

A difference of four points between these groups is noted in the area of "serious problems" or "maladjustment," the low intelligence group tending to have a greater number of poor adjustments.

The examination of Table III seemed to indicate that there were no differences between the kinds of problems of any of the intelligence sub-groups, as compared with the scores for the entire group. To ascertain whether or not statistical differences could be found between the groups, critical ratios were calculated.

The calculation of the critical ratios showed that there were no significant differences between the different intelligence groups' scores on the problem adjustment test. This means that for all practical discussion purposes, the high, low and average intelligence groups scored approximately the same on the problem adjustment inventory. Differences between the groups were not reliable inasmuch as the critical ratio scores did not fall within the one per cent or the five per cent level of confidence.

The actual numerical value for the critical ratio between the entire group and the low intelligence group was 0.48, which falls approximately at the fifty per cent (chance) level of confidence; between the entire group and the average intelligence group the critical ratio was 0.90 which also falls approximately at the fifty per cent (chance) level of confidence. The critical ratio between the entire group and the high intelligence group was 1.57, which falls close to, but not at the ten per cent level of confidence.

These critical ratio values indicate that there is no difference between the test patterns for the entire group and for any one of the sub-groups. The test score distributions of the groups are generally those of chance and, therefore, cannot be ascribed to any distinct differences between the groups themselves.

The critical ratios between the high intelligence group and the average intelligence group was 2.12; between the high intelligence group and the low intelligence group, 1.41. Of these latter critical ratios, the former falls close to, but not at, the five per cent level of confidence, and the latter falls close to, but not at, the ten per cent level.

The critical ratio value between the average intelligence group and the low intelligence group was 0.11, which does not even approach the fifty per cent level of confidence.

While there is some indication of a distinction between the high and the average intelligence group scores on the problem adjustment inventory (the scores approach significance at the five per cent level), there is no clear cut, distinct difference between the groups. The same is true for the differences between the high group and the low group, where the critical ratio score approaches, but does not reach the ten per cent level of confidence.

The calculation of critical ratios has therefore indicated that there were no significant differences between the different intelligence groups' scores on the problem adjustment inventory, although there were some tendencies for differences in the scores of the high group as contrasted to those of the low group.

The analysis of the following table (Table IV) tends to demonstrate these conclusions more clearly through the expression of numerical coefficients of correlation between intelligence and the number of problems of each of the four groups.

TABLE IV

THE STATISTICAL CORRELATIONS BETWEEN THE INTELLIGENCE OF
CHILDREN AND THE NUMBER OF THEIR PROBLEMS, BASED ON
ONE HUNDRED GRADE SCHOOL PUPILS

Intelligence of Group	Number of Problems	Correlation Coefficient	Probable Error
Whole Group, 100 Cases, I.Q. Range 64-145	All types (120 items)	(+) .32 ^a	(\pm) .06
High Group, 35 Cases, I.Q. Range 111-145	All types (120 items)	(+) .17	(\pm) .11
Average Group, 40 Cases, I.Q. Range 90-110	All types (120 items)	(+) .22	(\pm) .10
Low Group, 25 Cases, I.Q. Range 64-89	All types (120 items)	(+) .62	(\pm) .08

*Eta $N_{xy} = .51$

$N_{yx} = .51$

Table IV shows the correlation between the intelligence of the different groups of children and their number of problems. A low correlation or a lack of correlation may be important for the purposes of this study. In some instances, as an examination of Table IV will reveal, the probable error of the coefficient is so high that the coefficient of correlation itself is not reliable.

The rectilinear coefficient of correlation between the number of problems and the intelligence of the whole group was a positive .32. The fact that the correlation is positive tends to suggest that as intelligence increases the number of problems of the individual also tends to increase. The probable error of the correlation is .06. This probable error is high, in view of the low correlation itself; it is not enough, however, to invalidate the correlation.

The correlation between the whole group and the number of their problems was checked for a possible curvilinear relationship. The data indicated that a better measure of the relations between this group was given by the curvilinear correlation formula. As indicated in Table IV, the Eta correlation for this group was .51 for both N_{xy} and N_{yx} . Blakeman's short test for curvilinearity was used and it indicated that the curvilinear

correlation formula was the correct one to use for this group.^{4,5}

The higher curvilinear correlation of .51 indicates that there is some relationship between the number of problems and the intelligence of the entire group of one hundred cases. Inasmuch as the correlation is curvilinear, however, one cannot state positively that as intelligence increases the number of problems will also tend to increase.

The correlation between the number of problems and the intelligence of the low intelligence group was positive .62, with a probable error of .08. This is one of the highest correlations obtained from the data in this study, and it tends to indicate that there is some definite relationship between the intelligence and the number of problems of individuals with lower than average intelligence. The correlation seems high enough to warrant the statement that within the range of the low I.Q.'s (64-89), the individuals with the lowest I.Q.'s have fewer problems than those individuals within this group who have somewhat higher intelligence. This may be due to the fact that

⁴ Guilford, J. P., Psychometric Methods, New York, 1936, 348.

⁵ Blakeman's Formula (short form):

A regression is linear if: $(N) \times [(\text{Eta})^2 - (r)^2] > 11.37$

A regression is curvilinear if: $(N) \times [(\text{Eta})^2 - (r)^2] < 11.37$

Source: Holzinger, K. J., Statistical Methods for Students in Education, Boston, 1928

the lower I.Q.'s within the range of the low intelligence group are either not aware of many types of problems, or do not have the problems because they are not sufficiently intelligent to be disturbed by them.

The rectilinear correlations for this group were checked for linearity, and Blakeman's test was again applied to the derived Eta correlations. The results indicated for this group, however, that the true relationship is a rectilinear one, and that the correlation of positive .62 expressed as a rectilinear function is correct.

The correlation between the number of problems and the high and the average intelligence groups was positive .17 (probable error of .11) and positive .22 (probable error of .10) respectively. In both of these instances the correlations are seen to be low. In both of these groups the probable error of the coefficient of correlation is so high that it negates any meaningful interpretation of the correlations themselves.

There is nothing that can be positively concluded concerning the relationships between the number of problems and the intelligence of children in the high and the average intelligence groups of this study. The two correlations were checked for curvilinearity, but the resulting Eta correlations and Blakeman's test for curvilinearity both indicated that the true relationship is a rectilinear one, as expressed by the coefficients of correlation presented in Table IV.

It is important to note in summarizing Table IV that one cannot make definite statements concerning the number of problems of any one individual child in any of the groups studied. There are definite tendencies, however, which have been demonstrated by this study of an entire group of children who are all at a given level of intelligence. Of these tendencies or trends, the following seem most important (with reference to the data in Table IV): (1) There seems to be some relationship between the intelligence of children and the number of their problems. However, one cannot make a definite statement to the effect that a child of a given degree of intelligence shall have a given number of problems. The relationships have not been demonstrated to be exact to that degree of prediction. (2) All of the correlations (regardless of their actual numerical values) were positive, which tends to suggest that individuals of higher intelligence have a higher number of problems, and likewise, individuals of lower intelligence have fewer problems. This may be due to the fact that individuals of higher intelligence have the capacity to be aware of more of the problems of their environment, or they may have more complex environments in which to adjust themselves. (3) There seems to be very strong evidence to suggest that within the range of the low intelligence group observed in this study, individuals with the lowest degree of intelligence have fewer problems than individuals with comparatively higher intelligence. The data also supports the hypothesis that (within this low intelligence group) individuals within the higher intelligence levels tend to have a greater number of problems than those with the lowest intelligence.

TABLE V

THE STATISTICAL CORRELATIONS BETWEEN INTELLIGENCE AND
SIX DIFFERENT KINDS OF PROBLEMS, BASED ON A
STUDY OF ONE HUNDRED GRADE
SCHOOL CHILDREN*

Kind of Problem	Coefficient of Correlation		Correlation Ratios			
	r	P.E.	N _{xy}	S.E.	N _{yx}	S.E.
Physical Health	.16	.07	.40	.08	.23	.10
Emotional Problems	.27	.06	.91	.02	.50	.08
Extroversion-Introversion Tendencies	.17	.07	.47	.08	.53	.07
Family Adjustment	.24	.06	.40	.08	.57	.07
School Adjustment	.28	.06	.38	.09	.47	.08
Personal Adjustment	.30	.06	.43	.08	.53	.07

*All correlation ratios and all coefficients of correlation are positive.

Table V presents a summary of the relationships between intelligence and the kinds of problems of children. All of the correlations are based on the one hundred children used as the subjects for this study (their overall I.Q. range is from 64-145). Analysis has been made in Table V concerning six different areas of adjustment: physical health, emotional adjustment, extroversion-introversion tendencies, family adjustment and personal problems.

In order to obtain a measure of the total adjustment score for each of the six different areas of adjustment for each child, the number of poor or bad adjustment answers were subtracted from the number of the good and the excellent adjustment answers. The answers given by the children which showed neutral adjustment (indifference toward that problem) were disregarded.

Thus, for example, a child who had a total of fifty five good and excellent adjustment answers combined, but also had a total of poor or serious adjustment responses of fifteen, would receive a total adjustment score of forty for that particular area; i.e., physical health. By this procedure the examiner could correlate a single value for the total adjustment of each child in each area of adjustment as against the intelligence score (I.Q.) for that child.

The rectilinear correlations presented in Table V are accompanied by their probable error scores while the standard error score is presented for the curvilinear values. An examination of all of the rectilinear coefficients of correlation shows that the highest is a positive .30, while the lowest is positive .16. While the numerical value of the coefficients of correlation are not high (particularly when one considers the rather high probable error values which accompany many of them), it is interesting to note that all of the correlations are positive in each of the six different problem areas. This tends to support the evidence and statements previously presented in Table IV, with regard to the overall number of problems of children.

The analysis and conclusions which may be drawn from a study of Table V shall be discussed in the balance of this chapter with individual emphasis upon each of the six different problem areas. Thus, the first topic to be considered is the relationship between physical health problems and the intelligence of children (as expressed by the correlation values of Table V).

Table V indicates a linear coefficient of correlation between intelligence and physical health problems of positive

.16 (P.E. of .07). This coefficient was checked to see if a curvilinear relationship would express the true meaning of the correlation. The Eta_{xy} is positive .40 (S.E. of .08) and the Eta_{yx} is positive .23 (S.E. of .10). It is readily seen that the curvilinear values both reveal a possibility of a higher correlation than the one expressed customarily by the rectilinear coefficient of correlation.

Blakeman's checks for curvilinearity suggested that the correct expression for the relationship is the curvilinear value. The Eta_{xy} and the Eta_{yx} were corrected for possible errors due to the use of too few cases and for possible errors caused by incorrect grouping of the arrays in the correlation table.⁶ The corrected Eta_{xy} is positive .24 (S.E. of .10) and the corrected Eta_{yx} is positive .00, (S.E. of .00). When the Blakeman checks were applied to these corrected Eta values, it was found that the curvilinear relationship as the best method for expressing the true values in this area was no longer tenable. The Blakeman checks showed that the rectilinear

6 Formula:

$$\text{Corrected Eta} = \sqrt{\frac{(\text{Eta}_{\text{obt}})^2 \frac{(k-3)}{N}}{1 - \frac{(k-3)}{N}}}$$

Source: Garrett, H. E., Statistics in Psychology and Education, Longmans, Green and Co., 1950, 372.

value of positive .16 (P.E. of .07) is the best expression for the relationship between the intelligence and the physical health problems of the children who were the subjects in this investigation.

The numerical value of this correlation (positive .16) is very low. Its probable error (.07) is so high in comparison to the numerical value of the coefficient of correlation itself, that one must conclude, negatively, that there is no relationship between the intelligence of children and the physical health adjustment or problems of children. This does not say that there is no relationship between the physical condition of the subjects and their intelligence; it is a conclusion based on the problems or difficulties which children have in the area of physical health adjustments.

The rectilinear coefficient of correlation for the relationship between emotional problems and intelligence is positive .27 (P.E. of .06). The $E_{t_{xy}}$ is positive .91, (S.E. of .02) and the $E_{t_{yx}}$ is positive .50 (S.E. of .08). Blake-man's checks showed that the curvilinear relationship was the true relationship and best expressed the meaning of this

data.⁷ The rectilinear coefficient of correlation shall therefore be disregarded, and the meaning of the $E_{t_{yx}}$ will be discussed, inasmuch as it is most important for establishing the objectives of this study.

The $E_{t_{yx}}$ of positive .50 is accompanied by a low standard error (.08). The value of the correlation ratio is correct, and is therefore seen to be a good expression of the relationships between emotional adjustment and intelligence. The fact that there is a correlation in this area indicates that the two variables (emotional adjustment and intelligence) are related. An inspection of the scatter diagram for the distribution of the arrays further suggests that children with high intelligence and children with low intelligence tend to have the least amount of emotional difficulty or trouble in the area of emotional adjustment. However, the numerical value of the coefficient is not high, and it is not entirely justifiable to make such a statement, particularly since the number of subjects in this study was limited to one hundred.

7 The values in Table V for $E_{t_{xy}}$ and $E_{t_{yx}}$ under "emotional problems" were corrected by the correction formula presented in footnote six, page fifty seven. The corrected $E_{t_{xy}}$ is positive .90 (corrected S.E. is .02); the corrected $E_{t_{yx}}$ is positive .36 (corrected S.E. is .09). Blakeman's tests on these corrected curvilinear values indicated that the curvilinear expression of the relationship between emotional problems and intelligence was the correct method for revealing the meaning and true importance of the data.

These conclusions regarding emotional adjustment in no way explain why children in these particular groups should be so inclined toward excellent adjustment. However, this is not the purpose of the present investigation, and to hypothesize a cause or a reason for this occurrence would be to argue without fact.

A question may arise as to the reason for disregarding the E_{ta} , N_{xy} of .91 in this area of emotional adjustment in Table V. Although the value of this correlation ratio is very high it has been omitted from this discussion (as have all of the other N_{xy} values in Table V) since the dependent variable (in this instance, emotional adjustment) was plotted on the Y-axis of the correlation ratio chart, and the independent variable (intelligence) was plotted on the X-axis of the correlation ratio chart. Therefore, the N_{yx} , i.e., the dependence of adjustment in emotional matters on intelligence, is the crucial value for the purposes of the present investigation.

Table V indicates a rectilinear coefficient of correlation of positive .17 (P.E. of .07) for the relationship between extroversion-introversion tendencies and the intelligence of children. The terms "extroversion-introversion tendencies" are somewhat misleading. They actually involve a measure of the degree of "self-expression", or the ability of a child to "adapt to, work with and play with others".

Therefore, the terms "extroversion-introversion tendencies" are really a measure of the amount or degree of extroversion which a child is capable of expressing in this particular written test of adjustment.

The E_{taxy} is positive .47 (S.E. of .08) and the E_{tayx} is positive .53 (S.E. of .07).⁸ Blakeman's test indicated that the curvilinear relationship is the correct method for demonstrating the true meaning of the data in this area.

The standard error values which accompany the curvilinear values are not high enough to invalidate the meaning of the curvilinear ratios. Therefore, the importance of the correlations in this area are expressed by the E_{tayx} value, positive .53. This correlation ratio suggests that there is a relationship between intelligence and a tendency toward extroversion. An inspection of the scatter diagram for this correlation ratio tends to suggest that children of high and low intelligence are even more "extroverted"; i.e., better able to express themselves in a group, than those children within the average intelligence group of this study.

⁸ Corrected E_{taxy} is positive .35 (S.E. of .09); corrected E_{tayx} is positive .41 (S.E. of .08). Blakeman's checks indicated that the curvilinear expression remains the correct way to express the true meaning of the data, even if the correction formula (page fifty-seven, footnote six) is applied.

This tendency is not at all marked; it does not imply that children with average intelligence do not possess this characteristic, nor does it mean that all children in the high and the low intelligence categories will be inclined toward extroversion. Neither the correlation nor experience could possibly bear out such an extreme position.⁹

In examining the relationship between intelligence and family adjustment, the rectilinear coefficient of correlation in Table V is seen to be positive .24 (P.E. of .06). The E_{taxy} is positive .40 (S.E. of .08) and the E_{tayx} is positive .57, (S.E. of .07).¹⁰ Thus, in this area the important correlation ratio is expressed by the value of the E_{tayx} (positive .57). It is also observed that the standard error of this value is low (.07), so that there is no doubt that the correlation ratio itself is substantially correct.

9 H. E. Garrett, in his book, Statistics in Psychology and Education, New York, 1950, 371, illustrates this type of interpretation from the correlation ratio scatter diagram.

10 Blakeman's checks indicated that the curvilinear relation is the best correlation ratio for the expression of the true relationships in this area. The correlation ratios were corrected for possible inaccuracies (see page fifty-seven and footnote six, page fifty-seven). The corrected E_{taxy} is positive .24 (corrected S.E. is .10); the corrected E_{tayx} is positive .46 (corrected S.E. is .08). The Blakeman's checks for the corrected Eta values substantiated the fact that the curvilinear function is still the best way to describe the relationships in this area.

The E_{taxy} of positive .57 indicates that there is a relationship between family adjustment and intelligence, while an inspection of the scatter diagram for the correlation ratio tends to support the further conclusion that there is a better adjustment in this area by those children of very high and very low intelligence. The numerical value of the correlation ratio is not high enough to warrant more definite conclusions in this area. Experience certainly dictates that there are many children of average intelligence who are well adjusted in their family relationships, while there are also numerous examples of children with either low or high intelligence who are not well adjusted in their home life. The scatter diagram analysis suggests that there is a general tendency, when considering larger groups of children, for those of very high and those of very low intelligence to be most perfectly adjusted in their home environments.

The rectilinear coefficient of correlation for the relationship between school adjustment or school problems and the intelligence of children is positive .28 (P.E. of .06). The curvilinear values are: E_{taxy} of positive .38 (S.E. of .09), and E_{tayx} of positive .47 (S.E. of .08). The curvilinear values were checked by the correction formula previously described, and it was found that the corrected E_{taxy} is lowered

to positive .20 (corrected S.E. of .10) and the corrected E_{yx} became positive .31 (S.E. of .09, corrected). Blakeman's checks for linearity showed that the true relationship in this area is best described by the expression of the rectilinear value (positive .28).

The probable error (.06) for this correlation is not high enough to invalidate the correlation. Therefore, the positive .28 is a valid, good expression of the relationship between the intelligence of children and the degree of their school adjustment or school problems. The numerical value of the correlation itself is not high enough to warrant any major, definite conclusions in this area. The fact that the correlation is positive, however, suggests that children of higher intelligence are better adjusted (in general) in school than are children of low or lower intelligence. The correlation is so low, however, that one could not defend such a position without further evidence, or without qualifying such a statement to a high degree. It seems safest to conclude that the evidence in this area is inconclusive; that is, the study does not indicate which intelligence group is really best adjusted in this area of school adjustment or school life. Perhaps this is because, in actuality, no one group is really

better adjusted than the other; perhaps the matter in this area resolves itself toward a consideration of individual adjustment, rather than of any one intelligence group's adjustment.

The last area to be discussed is presented in Table V under the title "personal adjustment". The rectilinear coefficient of correlation is positive .30 (P.E. of .06). The curvilinear value of E_{xy} is positive .43 (S.E. of .08) and for E_{yx} it is positive .53 (S.E. of .07).

While the curvilinear values may seem to be much higher than the rectilinear coefficient, the corrected E correlations are not so. Corrected, the E_{xy} is positive .29 (corrected S.E. of .09) and the corrected E_{yx} is positive .41 (corrected S.E. of .08). Blakeman's checks revealed that the best and truest possible method for explaining the relationships in this area demanded the use of the rectilinear coefficient of correlation.

The importance of the correlation of positive .30 is seen not because of its numerical value, but rather, because of the fact that it is positive, and because of its accompanying low probable error (.06). This correlation tends to suggest that as intelligence increases (i.e., as one goes upward in the scale from those of low intelligence towards those

of higher intelligence), there is better adjustment in personal affairs and matters of a personal nature.¹¹ The coefficient of correlation in this area is not numerically high, so it is impossible to make an explicit statement regarding the relationships in this area. Therefore, those conclusions which have been drawn in this area have been phrased in terms of the possibility of a "tendency toward" instead of being more exact and positive.¹²

A detailed summary of the important conclusions of this chapter is presented in the final portion of this thesis, Chapter VI. Briefly, however, Table V has indicated the following relationships between intelligence and the kinds of problems of the one hundred subjects of this study: (1) there appears to be no relationship between intelligence and physical health problems or adjustment; (2) there is a positive relationship between intelligence and the degree of adjustment in emotional matters or amount of emotional control; (3) there is

11 For a more explicit discussion of what this term includes, the reader is referred to page nineteen of this thesis.

12 Correlation ratios and coefficients of correlation were also obtained for each of the sub-groups and each of the six problem areas discussed previously. No significant findings could be elicited by this method.

a positive relationship between intelligence and family adjustment, and there are also indications (but not definite, conclusive evidence) that children of very low and very high intelligence tend to be more extroverted, i.e., better able to express themselves in a group, mingle with others, etc.; (4) there is a positive relationship between intelligence and family adjustment. An analysis of the scatter diagram suggests that there is a tendency for children in the high and the low intelligence groups of this study to be better adjusted in their family situations; however, the evidence here is not great enough to allow for more precise statements; (5) there is some evidence to indicate that children of high intelligence are better adjusted in school than those of lower intelligence; however, the evidence in this area is not conclusive, and is only suggestive of possible tendencies; (6) there has been presented evidence to indicate that as intelligence increases, there is also an increasing tendency for better adjustment in personal affairs and matters of a personal nature.

CHAPTER VI

SUMMARY AND CONCLUSIONS

This concluding chapter is intended to present a summary of the entire study and the important conclusions of the thesis.

The original problem consisted of two parts: (1) the relationship between intelligence and the number of problems of children and (2) the relationship between intelligence and the kinds of problems of children. The hypothesis was that the higher the intelligence, the fewer the number of problems, and, consequently the better the individual adjustment. The converse of the statement was also believed to be probable.

In order to verify the hypothesis, it was necessary to select tests which would measure the factors involved, namely, intelligence and the number and kinds of problems of children. Two different tests were administered to each of the one hundred children who were the subjects for this study.

Thurstone's Primary Mental Abilities Examination yielded an intelligence quotient, while the Detroit Adjustment Inventory yielded a measure of the number and kinds of problems of children.

Having obtained these data, it was necessary next to determine the correlation between these factors. The Otis Correlation Charts and techniques were used to accomplish that end. Holzinger Forms for the Coefficient of Correlation and the Correlation Ratio were used in cases where the relationship between the factors was non-linear. The calculation of critical ratios determined the significance of the findings and the significance of the differences between the groups.

On the basis of the statistical correlations presented and interpreted in Table IV of Chapter V, the following conclusions concerning the relationships between intelligence and the number of problems of children may be summarized: (1) There is some relationship between intelligence and the number of problems of children. This relationship is not obvious if one examines the entire group of children, but it becomes apparent as one investigates the different intelligence groups individually; (2) In the range of the low intelligence group of this study (I.Q. range 64-89), children with the relatively higher intelligence have a greater number of problems than children with the very lowest I.Q.'s. This is probably due to the fact that those children with the lowest intelligence (i.e., I.Q.'s below seventy or seventy-five) are not sufficiently aware of the factors in their environments to be disturbed by them.

Children with I.Q.'s of eighty to ninety (approximate), however, are intelligent enough to realize many of their inabilities and, therefore, as one would expect, have a correspondingly higher number of problems. The explanation for this finding is a theory. The finding is a statistical fact; (3) It is not possible to make any statements as regards the number of problems of the children in the average and in the high intelligence groups of this study. The statistical evidence was inconclusive; that is, the correlations were suggestive of trends, but not high enough to warrant any definite conclusions; (4) Lastly, there is some suggestion that, contrary to the original hypothesis of this thesis, individuals of high intelligence tend to have a greater number of problems than individuals with relatively lower intelligence.

The last portion of the work of this thesis involved the investigation of the relationships between intelligence and six different kinds of problems which children commonly encounter. The summary presented here of this investigation is based on the statistical evidence cited in Table V of Chapter V.

- (1) The conclusions regarding intelligence as related to the physical health problems of children are indefinite. The statistical evidence of this study showed no relationships.

- (2) The research of this study suggests that intelligence and emotional adjustment are positively related. A further analysis of the statistical data from which the correlation ratios were obtained tends to indicate that those children of very high and very low intelligence tend to have fewer problems of an emotional nature than do children of average intelligence. The evidence only suggests that children in these categories are more apt to be well adjusted emotionally; it is by no means definite or conclusive.
- (3) The study indicates that there is a positive relationship between intelligence and the degree of extroversion, i.e., mingling with others, greater degree of sociability, etc. Further analysis of the scatter diagram for the correlation ratio in this area tends to support the statement that children of very low or very high intelligence tend toward the greatest amount of extroversion. Further research in this specific area is needed before such a statement may be accepted as conclusive.
- (4) The study indicates that there is a positive relationship between intelligence and the adjustment of children in their family situations. Further analysis of the correlation ratio data suggests that children in the low and the high intelligence categories tend to be the best adjusted in their family situations. This does not mean that children of average intelligence are not well adjusted in their home life.
- (5) The area concerning the school adjustments of children left no final explicit results. The conclusion here is that there is no relationship between any group of children of a given intelligence level and their degree of school adjustment. The problem here is apparently very much an individual matter.
- (6) The study indicates that there is a tendency for children of higher intelligence to be better adjusted in their personal relationships than are children of lower intellectual levels. Here again, the evidence is not strong enough to support this statement without qualification, or without further evidence.

The above conclusions are the chief results of this investigation. On the basis of these conclusions it is necessary that the basic hypothesis of this thesis be rejected. It

is not possible to say without qualification that children of high intelligence have fewer problems than children of lower intelligence. Indeed, all of the evidence of this study tends to suggest the opposite; namely, that children of high intelligence tend to have a greater number of problems to meet and to solve, but they also are (in general) better adjusted in each of those areas which have been investigated herein. The investigation also tends to support the statement that children in the lowest intelligence categories are well adjusted (probably because they are not aware of the problems which other children of higher intelligence must face, or because they are not being required to do work beyond their abilities).

In the final evaluation of what has been accomplished by this thesis, the author remains keenly aware of the fact that many areas of investigation require new and more extensive research in specific fields (as indicated throughout the above discussions).

Future investigations in this particular field of endeavor will probably illustrate new facts and theories. It is hoped that the material concluded herein shall be substantiated and ascertained by the work of the future, and that the material which is indicative of fruitful research shall be more thoroughly investigated by the work of others.

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APPENDIX I

THE SRA PRIMARY MENTAL ABILITIES TEST, SCORING SHEET, AND
SELF-INTERPRETING PROFILE, INTERMEDIATE FORM,
AGES ELEVEN TO SEVENTEEN

SRA PRIMARY MENTAL ABILITIES

INTERMEDIATE—AGES 11-17—FORM AH

*Prepared by L. L. Thurstone, The University of Chicago and Thelma Gwinn Thurstone,
Director, Bureau of Child Study of the Chicago Public Schools*

You are going to take a series of five tests called the SRA PRIMARY MENTAL ABILITIES. The purpose of the tests is to find out how well you can solve different kinds of problems. Each of the five tests is important.

It is possible that some of the tests will be more interesting than others; that some will be easier than others; and that some students may do well in one test, and some in another. But you should do the very best you can in every test.

This booklet will be used by many students after you. In order that all of them may have the same chance to make a good score, you are asked to handle the booklet very carefully. Do NOT make marks of any kind on the booklet. Mark your answers ONLY on the Answer Pad.

Read the instructions for each test carefully. Do exactly what they say. Be sure you understand the practice problems before the examiner gives the signal to work the test problems. Listen carefully to the instructions.

The tests are too long to be finished in the time allowed. Work as quickly and as accurately as you can. If you have difficulty with one problem, do not spend too much time on it. Omit it and go on to the next problem.

STOP HERE—DO NOT TURN THE PAGE UNTIL THE EXAMINER TELLS YOU

[illegible][illegible]

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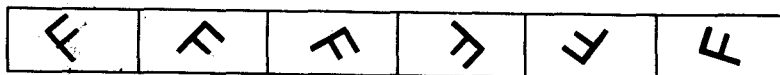
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B	C	D

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B	C	D

MOIST	A. Curt	B. Humane	C. Damp	D. Moderate	<input type="checkbox"/>
QUICK	A. Major	B. Hasty	C. Narrow	D. Vigorous	<input type="checkbox"/>
ANNUAL	A. Variable	B. Yearly	C. Listless	D. Untenable	<input type="checkbox"/>
SPLENDID	A. Expansive	B. Gay	C. Rigid	D. Excellent	<input type="checkbox"/>
CUSTOMARY	A. Nocturnal	B. Radial	C. Prime	D. Usual	<input type="checkbox"/>
FLUID	A. Livid	B. Dead	C. Liquid	D. Talkative	<input type="checkbox"/>
IDLE	A. Lazy	B. Cross	C. Wild	D. Useful	<input type="checkbox"/>
DESERTED	A. Drab	B. Absurd	C. Disturbed	D. Abandoned	<input type="checkbox"/>
RARE	A. Holy	B. Crass	C. Infrequent	D. Weak	<input type="checkbox"/>
CONTENTED	A. Nasty	B. Continuous	C. Defamatory	D. Satisfied	<input type="checkbox"/>
ENRAGED	A. Pleasing	B. Poor	C. Angry	D. Domestic	<input type="checkbox"/>
BENEFICIAL	A. Artificial	B. Tamable	C. Helpful	D. Piquant	<input type="checkbox"/>
MOLDY	A. Tonic	B. Musty	C. Shapeless	D. Mute	<input type="checkbox"/>
RASPING	A. Harsh	B. Minute	C. Kinaesthetic	D. Marshy	<input type="checkbox"/>
DIETARY	A. Diagrammatic	B. Amorphous	C. Dietetic	D. Grammatical	<input type="checkbox"/>
SOBER	A. Dirty	B. Cloudy	C. Serious	D. Fitting	<input type="checkbox"/>
DROLL	A. Delightful	B. Odd	C. Forceful	D. Foreign	<input type="checkbox"/>
STATELY	A. Dignified	B. Thin	C. Digestible	D. Valid	<input type="checkbox"/>
DISREPUTABLE	A. Shameful	B. Forensic	C. Horticultural	D. Susceptible	<input type="checkbox"/>
GENTEEL	A. Wealthy	B. Urban	C. Polite	D. Ignorant	<input type="checkbox"/>
ORIGINAL	A. Oral	B. Derelict	C. First	D. Reliable	<input type="checkbox"/>
NOVEL	A. Expensive	B. New	C. Gloomy	D. Radical	<input type="checkbox"/>
FAMOUS	A. Celebrated	B. Faithful	C. Renewed	D. Nimble	<input type="checkbox"/>
SYSTEMATIC	A. Laudatory	B. Orderly	C. Jubilant	D. Ambitious	<input type="checkbox"/>
FATIGUED	A. Pliable	B. Grave	C. Weary	D. Fanatic	<input type="checkbox"/>
RESPLENDENT	A. Phonetic	B. Tart	C. Brilliant	D. Fearless	<input type="checkbox"/>
GENEROUS	A. Oblivious	B. Ardent	C. Liberal	D. Defiant	<input type="checkbox"/>
KINGLY	A. Bland	B. Facial	C. Recent	D. Regal	<input type="checkbox"/>
FLEXIBLE	A. Pitiable	B. Formal	C. Pliant	D. Peaceful	<input type="checkbox"/>
SAGACIOUS	A. Exotic	B. Apparent	C. Wise	D. Mild	<input type="checkbox"/>
HEEDLESS	A. Patient	B. Eligible	C. Parallel	D. Rash	<input type="checkbox"/>
DEFICIENT	A. Constant	B. Dreary	C. Lacking	D. Peculiar	<input type="checkbox"/>
VIGILANT	A. Watchful	B. Indulgent	C. Valorous	D. Nascent	<input type="checkbox"/>
MINIMUM	A. Humid	B. Restricted	C. Tranquil	D. Least	<input type="checkbox"/>
GALLANT	A. Chivalrous	B. Authentic	C. Treacherous	D. Probable	<input type="checkbox"/>
GIDDY	A. Feminine	B. Casual	C. Dizzy	D. Comical	<input type="checkbox"/>
DISCREET	A. Caustic	B. Redolent	C. Honorable	D. Prudent	<input type="checkbox"/>
DESTINED	A. Simplified	B. Fated	C. Directional	D. Lucky	<input type="checkbox"/>
ETERNAL	A. Momentous	B. Benign	C. Priceless	D. Perpetual	<input type="checkbox"/>
LAVISH	A. Combined	B. Ribald	C. Worthy	D. Extravagant	<input type="checkbox"/>
DEFECTIVE	A. Concealed	B. Mythical	C. Faulty	D. External	<input type="checkbox"/>
VAGUE	A. Numb	B. Obscure	C. Indecent	D. Vermiculate	<input type="checkbox"/>
ESSENTIAL	A. Classical	B. Indispensable	C. Deplorable	D. Candid	<input type="checkbox"/>
IMPULSIVE	A. Impetuous	B. Petrified	C. Immature	D. Compulsory	<input type="checkbox"/>
DIFFIDENT	A. Fabulous	B. Shy	C. Valuable	D. Alphabetical	<input type="checkbox"/>
ERRONEOUS	A. Solemn	B. False	C. Ironical	D. Tragic	<input type="checkbox"/>
BENEVOLENT	A. Kind	B. Native	C. Suitable	D. Modest	<input type="checkbox"/>
GRIMY	A. Stern	B. Filthy	C. Grim	D. Colorful	<input type="checkbox"/>
LACERATED	A. Disgruntled	B. Mangled	C. Fringed	D. Stricken	<input type="checkbox"/>
INSOLENT	A. Studious	B. Envious	C. Arrogant	D. Accidental	<input type="checkbox"/>

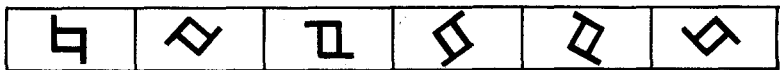
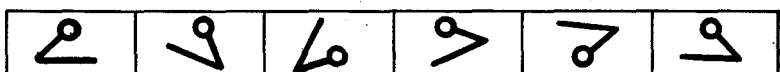
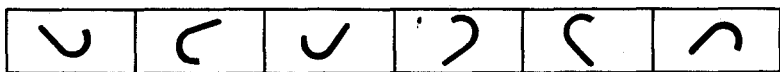
F



F



J



J



Remember that in each row, there may be any number of figures LIKE the first one.

Work quickly, but try not to make mistakes. You will have 5 minutes for the test. You are not expected to finish in the time allowed.

[illegible]

PRACTICE EXERCISES

Study the series of letters below. What letter should come NEXT?

a b a b a b a b

The series goes like this: **ab ab ab ab**. The NEXT letter in the series should be **a**. An **X** has been marked in **a** on the Answer Pad.

Now study the series of letters below. Decide what the NEXT letter should be. Mark an **X** in the box of the NEXT letter in this series.

c a d a e a f a

The series goes like this: **ca da ea fa**. You should have marked **g**.

Now study the series of letters below. In each series, decide what the NEXT letter should be. Mark an **X** in the box of this letter. If you wish to change an answer, draw a circle around this box like **⊗**. Then mark the new answer in the usual way.

c d c d c d

a a b b c c d d

a b x c d x e f x g h x

In the first row, the series goes like this: **cd cd cd**. You should have marked **c**.

In the second row, the series goes like this: **aa bb cc dd**. You should have marked **e**.

In the third row, the series goes like this: **abx cdx efx ghx**. You should have marked **i**.

Now work the following problems for practice. Mark the NEXT letter in each series. Be sure you mark an **X** in the proper boxes on the Answer Pad in the right.

a a a b b b c c c d d

a x b y a x b y a x b

a b m c d m e f m g h m

r s r t r u r v r w r x r

a b c d a b c e a b c f a b c

In the first row, the series goes like this: **aaa bbb ccc dd**. You should have marked **d**.

In the second row, the series goes like this: **axby axby axb**. You should have marked **y**.

In the third row, the series goes like this: **abm cdm efm ghm**. You should have marked **i**.

In the fourth row, the series goes like this: **rs rt ru rv rw rx r**. You should have marked **y**.

In the fifth row, the series goes like this: **abcd abce abcf abc**. You should have marked **g**.

Be sure you understand how to work this kind of problem. When the examiner gives the signal, you are to work more problems like those above.

If you come to a problem you cannot work, skip it and go on to the next problem. If you have time, go back again to the hard problems.

Work quickly, but try not to make mistakes. You will have 6 minutes for the test. You are not expected to finish in the time allowed.

e	f	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
h	i	j	k	l	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
b	c	d	e	f	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
k	l	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
b	c	f	g	h	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
b	c	d	e	y	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
d	m	n	o	p	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
c	d	e	f	g	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
b	c	d	e	f	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
i	j	k	l	m	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
i	j	k	l	m	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
d	i	j	k	l	A	B	X	D	X	X																				
b	c	d	e	f	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
b	c	d	e	f	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
i	j	k	x	y	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
e	f	g	h	i	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
b	c	d	e	f	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
k	l	m	n	o	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
h	i	j	k	l	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
i	k	n	o	p	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
h	i	j	k	l	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
b	c	g	h	i	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
b	c	d	e	f	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
b	c	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
h	i	i	m	n	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
s	t	w	x	y	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
b	c	f	g	h	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
k	l	m	n	o	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
b	c	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
f	g	h	i	j	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
v	w	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
j	k	l	m	n	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
g	h	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
i	j	k	l	m	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
f	g	h	i	j	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
g	r	s	t	u	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
v	w	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
i	j	k	l	m	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
g	h	i	j	k	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

a x a y b x b y c x c y d x d
a b c a b c d e f d e f g h i
a b c x y z d e f x y z g h i
a b c a b d a b e a b f
x y z a x y z b x y z c x y z
e f c g h c i j c k l c m n c

c b a c b a c b a c b
a m b c m d e f m g h i j
a a c c e e g g i i
e f e f c d g h g h c d i j

a b b c c c d d d d e e e e
a b c a b c d a b c d e
a b c c d e f f g h i i j k l
a b a c d c e f e g h g i j
a b c n o d e f n o g h i n o
a b b b c d d d e f f f g h h
h g f e d c b

a c e g i k m
a x b y c z a x b y c z a x b
a b b c d d e f f g h
g h j k m n p q s t v w
a b c a d e f d g h i g j k l
a s b t c u d v e w f x g
a a b b c d d e e f g g h
a a b a b c c d c d e e f
a c f h k m p r
v v v v v w w w w x x x y
a b c c b a d e f f e d g h i
a b c b c d e f e f g h i h

a b c d e f g h	A B C D E F G H
d e f g h i j k l	A B C D E F G H
g h i j k l	A B C D E F G H
x b c d e f	A B C D E F G H
j k l x y z	A B C D E F G H
a b c f g h	A B C D E F G H
x b c d e y	A B C D E F G H
c d m n o p	A B C D E F G H
a c d e f g	A B C D E F G H
a b c d e f	A B C D E F G H
i j k l m	A B C D E F G H
i j k l m	A B C D E F G H
d i j k l	A B C D E F G H
b c d e f	A B C D E F G H
b c d e f	A B C D E F G H
i j k x y	A B C D E F G H
e f g h i	A B C D E F G H
b c d e f	A B C D E F G H
k l m n o	A B C D E F G H
h i j k l	A B C D E F G H
j k n o p	A B C D E F G H
h i j k l	A B C D E F G H
b c g h i	A B C D E F G H
b c d e f	A B C D E F G H
b c x y z	A B C D E F G H
h i j m n	A B C D E F G H
s t w x y	A B C D E F G H
b c f g h	A B C D E F G H
k l m n o	A B C D E F G H
b c x y z	A B C D E F G H
f g h i i	A B C D E F G H
v w x y z	A B C D E F G H
j k l m n	A B C D E F G H
g h x y z	A B C D E F G H
i j k l m	A B C D E F G H
f g h i i	A B C D E F G H
q r s t u	A B C D E F G H
v w x y z	A B C D E F G H
i j k l m	A B C D E F G H
g h i j k	A B C D E F G H

16	42
38	61
45	83
<u>99</u>	<u>176</u>

The **B** answer is Wrong, so an **X** has been marked in **W** on the Answer Pad.

A	B	C
17	35	63
84	28	17
29	61	89
<hr/> 140	<hr/> 124	<hr/> 169

The c answer is Right, so you should have marked **R**.

Work quickly, but try not to make mistakes. You will have 6 minutes for this test. You are not expected to finish in the time allowed. There are TWO pages of test problems.

**STOP HERE—DO NOT TURN THE PAGE
UNTIL THE EXAMINER TELLS YOU**

		d e f i x y z	A B C D E F	A B C D
A	R W	g h i j k l	A B C D E F	A B C D
B	R W	a b c d e f	A B C D E F	A B C D
		i j k l x y z	A B C D E F	A B C D
A	R W	a b c f g h	A B C D E F	A B C D
B	R W	x b c d e y		A B C D
C	R W	c d m n o p	A B C D E F	A B C D
D	R W	<u>a c d e f g</u>	A B C D E F	A B C D
E	R W	a b c d e f		A B C D
A	R W	h i j k l m	A B C D E F	A B C D
B	R W	h i j k l m		A B C D
C	R W	c d i i k l	A B X D X X	A B C D
D	R W	<u>a b c d e f</u>		A B C D
E	R W	a b c d e f	A B C D E F	A B C D
				A B C D
	R W	<u>h i j k x y</u>	A B C D E F	A B C D
	R W	d e f g h i		A B C D
	R W	a b c d e f	A B C D E F	A B C D
	R W	j k l m n o		A B C D
	R W	g h i i k l	A B C D E F	A B C D
		i i k n o p	A B C D E F	A B C D
	R W	g h i i k l		A B C D
	R W	a b c g h i	A B C D E F	A B C D
	R W	<u>a b c d e f</u>		A B C D
		a b c x y z	A B C D E F	A B C D
	R W	g h i i m n	A B C D E F	A B C D
	R W	r s t w x y		A B C D
	R W	<u>a b c f g h</u>	A B C D E F	A B C D
	R W	j k l m n o		A B C D
	R W	a b c x y z	A B C D E F	A B C D
	R W	e f g h i i		A B C D
	R W	u v w x y z	A B C D E F	A B C D
	R W	i j k l m n	A B C D E F	A B C D
	R W	f g h x y z		A B C D
	R W	h i j k l m	A B C D E F	A B C D
	R W	e f g h i i		A B C D
	R W	p q r s t u	A B C D E F	A B C D
	R W	u v w x y z	A B C D E F	A B C D
	R W	h i j k l m		A B C D
	R W	f g h i j k	A B C D E F	A B C D

NUMBER

A	B	C	D	E
61	31	66	73	13
34	59	73	29	39
78	52	15	56	99
53	68	38	33	32
226	200	202	211	183

A	B	C	D	E
48	88	86	69	71
45	29	49	44	37
17	69	54	89	66
82	98	22	84	55
192	284	111	286	129

A	B	C	D	E
44	75	26	99	25
49	54	44	77	46
23	36	75	82	92
48	17	51	68	57
164	162	196	316	220

A	B	C	D	E
43	31	59	52	68
34	73	29	56	33
89	13	39	99	32
32	48	45	17	82
198	185	192	124	225

A	B	C	D	E
78	95	79	89	97
56	49	22	64	35
76	44	84	61	66
35	37	55	34	73
245	205	240	258	271

A	B	C	D	E
13	26	44	97	13
92	99	77	92	99
31	26	86	26	86
36	62	68	86	79
172	213	275	201	367

A	RW	defxyz	ABCDEF	ABCD
B	RW	ghijkl	ABCDEF	ABCD
		abcedef	ABCDEF	ABCD
		ijklxyz	ABCDEF	ABCD
A	RW	abcifgh	ABCDEF	ABCD
B	RW	xbcdey	ABCDEF	ABCD
C	RW	cdmnop	ABCDEF	ABCD
D	RW	acdefg	ABCDEF	ABCD
E	RW	abcdef	ABCDEF	ABCD
A	RW	hijklm	ABCDEF	ABCD
B	RW	hijklm	ABCDEF	ABCD
C	RW	cdiikl	ABXDX	ABCD
D	RW	abcdef	ABCDEF	ABCD
E	RW	abcdef	ABCDEF	ABCD
A	RW	hijkxy	ABCDEF	ABCD
B	RW	defghi	ABCDEF	ABCD
C	RW	abcdef	ABCDEF	ABCD
D	RW	ijklmno	ABCDEF	ABCD
E	RW	ghijkl	ABCDEF	ABCD
		ijknopr	ABCDEF	ABCD
A	RW	ghijkl	ABCDEF	ABCD
B	RW	abcghi	ABCDEF	ABCD
C	RW	abcdef	ABCDEF	ABCD
		abcxyz	ABCDEF	ABCD
A	RW	ghijimn	ABCDEF	ABCD
B	RW	rstwxy	ABCDEF	ABCD
C	RW	abcifgh	ABCDEF	ABCD
D	RW	ijklmno	ABCDEF	ABCD
E	RW	abcxyz	ABCDEF	ABCD
A	RW	efghii	ABCDEF	ABCD
B	RW	uvwxyz	ABCDEF	ABCD
C	RW	ijklmn	ABCDEF	ABCD
D	RW	fgihxyz	ABCDEF	ABCD
E	RW	hijklm	ABCDEF	ABCD
A	RW	efghii	ABCDEF	ABCD
B	RW	pqrstu	ABCDEF	ABCD
C	RW	uvwxyz	ABCDEF	ABCD
D	RW	hijklm	ABCDEF	ABCD
E	RW	fgihijk	ABCDEF	ABCD

MARK
TEST
OKLET

CRATCH
FOR
RING

26	44	75	51	81
77	82	68	39	46
32	84	39	92	43
99	32	57	32	48
234	232	339	314	208

A	B	C	D	E
32	97	23	71	48
98	63	36	46	59
22	76	41	67	17
91	57	65	62	16
243	303	165	236	150

A	B	C	D	E
24	89	26	81	75
85	95	86	39	47
94	55	34	84	55
47	79	99	79	19
250	218	345	293	196

A	B	C	D	E
18	59	64	83	32
15	44	61	34	97
57	78	34	41	23
96	89	19	16	71
186	280	188	174	243

A	B	C	D	E
98	22	91	28	81
63	76	57	63	39
36	41	65	62	67
46	67	62	87	52
243	196	295	260	239

A	B	C	D	E
89	75	51	43	31
86	82	68	73	29
69	99	32	39	99
71	87	23	17	82
315	243	174	182	251

A	B	C	D	E
59	52	68	31	59
56	33	47	43	73
32	55	56	92	43
19	33	58	79	57
146	173	239	245	232

A	B	C	D	E
42	68	75	78	23
29	56	33	47	56
13	39	45	32	55
32	48	99	17	82
106	201	242	154	216

A R W	A R W	d e f i x y z	A B C D E F	A B C D
C R W	A R W	g h i j k l	A B C D E F	A B C D
D R W	B R W	x b c d e f	A B C D E F	A B C D
E R W		i j k l x y z	A B C D E F	A B C D
A R W	A R W	a b c f g h	A B C D E F	A B C D
B R W	B R W	x b c d e y	A B C D E F	A B C D
C R W	C R W	c d m n o p	A B C D E F	A B C D
D R W	D R W	a c d e f g	A B C D E F	A B C D
E R W	E R W	a b c d e f	A B C D E F	A B C D
A R W	A R W	h i j k l m	A B C D E F	A B C D
B R W	B R W	h i j k l m	A B C D E F	A B C D
C R W	C R W	c d i j k l	A B C D E F	A B C D
D R W	D R W	a b c d e f	A B C D E F	A B C D
E R W	E R W	a b c d e f	A B C D E F	A B C D
A R W	A R W	h i j k x y	A B C D E F	A B C D
B R W	B R W	d e f g h i	A B C D E F	A B C D
C R W	C R W	a b c d e f	A B C D E F	A B C D
D R W	D R W	i j k l m n o	A B C D E F	A B C D
E R W	E R W	g h i j k l	A B C D E F	A B C D
A R W		i j k n o p	A B C D E F	A B C D
B R W	A R W	g h i j k l	A B C D E F	A B C D
C R W	B R W	a b c g h i	A B C D E F	A B C D
D R W	C R W	a b c d e f	A B C D E F	A B C D
E R W		a b c x y z	A B C D E F	A B C D
A R W	A R W	g h i j m n	A B C D E F	A B C D
B R W	B R W	r s t w x y	A B C D E F	A B C D
C R W	C R W	a b c f g h	A B C D E F	A B C D
D R W	D R W	i j k l m n o	A B C D E F	A B C D
E R W	E R W	a b c x y z	A B C D E F	A B C D
A R W	A R W	e f g h i i	A B C D E F	A B C D
B R W	B R W	u v w x y z	A B C D E F	A B C D
C R W	C R W	i j k l m n	A B C D E F	A B C D
D R W	D R W	f g h x y z	A B C D E F	A B C D
E R W	E R W	h i j k l m	A B C D E F	A B C D
A R W	A R W	e f g h i i	A B C D E F	A B C D
B R W	B R W	p q r s t u	A B C D E F	A B C D
C R W	C R W	u v w x y z	A B C D E F	A B C D
D R W	D R W	h i j k l m	A B C D E F	A B C D
E R W	E R W	f g h i j k	A B C D E F	A B C D

PRACTICE EXERCISES

Look at the words in the list below. Each word begins with *d*.

doll

dinner

daisy

doughnut

You are to write several words which BEGIN with *p*. One word you might write is *pretty*. Turn to the next page, and in the spaces at the TOP of the page on the Answer Pad, write three more words which BEGIN with *p*.

Be sure you understand what you are to do. When the examiner gives the signal, you will be given a new letter. You are to write as many words as you can which begin with the new letter. Any word is all right if it begins with the new letter. If you think of a word that you cannot spell, just spell it the best you can.

Write the words as fast as you can. You will have 5 minutes for the test.

**STOP HERE—DO NOT TURN THE PAGE
UNTIL THE EXAMINER TELLS YOU**

B	R	W	A	R	W	d	e	f	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
C	R	W	B	R	W	g	h	i	j	k	l	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
D	R	W	E	R	W	x	b	c	d	e	f	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
E	R	W	A	R	W	i	k	l	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	R	W	B	R	W	a	b	c	f	g	h	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
B	R	W	C	R	W	x	b	c	d	e	y	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
C	R	W	D	R	W	c	d	m	n	o	p	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
D	R	W	E	R	W	a	c	d	e	f	g	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
E	R	W	A	R	W	a	b	c	d	e	f	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	R	W	B	R	W	h	i	j	k	l	m	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
B	R	W	C	R	W	h	i	j	k	l	m	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
C	R	W	D	R	W	c	d	i	j	k	l	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
D	R	W	E	R	W	a	b	c	d	e	f	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
E	R	W	A	R	W	a	b	c	d	e	f	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	R	W	B	R	W	h	i	j	k	x	y	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
B	R	W	C	R	W	d	e	f	g	h	i	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
C	R	W	D	R	W	a	b	c	d	e	f	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
D	R	W	E	R	W	i	k	l	m	n	o	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
E	R	W	A	R	W	g	h	i	j	k	l	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	R	W	B	R	W	i	j	k	n	o	p	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
B	R	W	C	R	W	g	h	i	j	k	l	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
C	R	W	D	R	W	a	b	c	g	h	i	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
D	R	W	E	R	W	a	b	c	d	e	f	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
E	R	W	A	R	W	a	b	c	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	R	W	B	R	W	q	h	i	j	m	n	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
B	R	W	C	R	W	r	s	t	w	x	y	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
C	R	W	D	R	W	a	b	c	f	g	h	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
D	R	W	E	R	W	i	k	l	m	n	o	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
E	R	W	A	R	W	a	b	c	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	R	W	B	R	W	e	f	g	h	i	j	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
B	R	W	C	R	W	u	v	w	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
C	R	W	D	R	W	i	j	k	l	m	n	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
D	R	W	E	R	W	f	g	h	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
E	R	W	A	R	W	h	i	j	k	l	m	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	R	W	B	R	W	e	f	g	h	i	j	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
B	R	W	C	R	W	p	q	r	s	t	u	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
C	R	W	D	R	W	u	v	w	x	y	z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
D	R	W	E	R	W	h	i	j	k	l	m	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
E	R	W	A	R	W	f	g	h	i	j	k	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

WORD-FLUENCY

pretty

**STOP HERE—TURN BACK TO PAGE 10
AND FINISH READING THE INSTRUCTIONS**

1	36
2	37
3	38
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STOP HERE—THIS IS THE END

When the examiner gives the signal, print your name and other information in the spaces provided on the left side of this page.

Directions for scoring are given on the inside of this Answer Pad. To remove the Answer Pad from the Test Booklet, hold the Answer Pad at the top left corner and lift upward.

A R W	a b c d e f g h i j k l m n o p q r s t u v w x y z	A B C D E F	A B C D
C R W	A R W g h i j k l	A B C D E F	A B C D
D R W	B R W x b c d e f	A B C D E F	A B C D
E R W	A R W a b c d e f	A B C D E F	A B C D
A R W	A R W a b c f g h	A B C D E F	A B C D
B R W	B R W x b c d e v	A B C D E F	A B C D
C R W	C R W c d m n o p	A B C D E F	A B C D
D R W	D R W a c d e f g	A B C D E F	A B C D
E R W	E R W a b c d e f	A B C D E F	A B C D
A R W	A R W h i j k l m	A B C D E F	A B C D
B R W	B R W h i j k l m	A B C D E F	A B C D
C R W	C R W c d i j k l	A B C D E F	A B C D
D R W	D R W a b c d e f	A B C D E F	A B C D
E R W	E R W a b c d e f	A B C D E F	A B C D
A R W	A R W h i j k x y	A B C D E F	A B C D
B R W	B R W d e f g h i	A B C D E F	A B C D
C R W	C R W a b c d e f	A B C D E F	A B C D
D R W	D R W i j k l m n o	A B C D E F	A B C D
E R W	E R W g h i j k l	A B C D E F	A B C D
A R W	A R W i i k n o p	A B C D E F	A B C D
B R W	B R W g h i j k l	A B C D E F	A B C D
C R W	C R W a b c g h i	A B C D E F	A B C D
D R W	D R W a b c d e f	A B C D E F	A B C D
E R W	E R W a b c x y z	A B C D E F	A B C D
A R W	A R W g h i i m n	A B C D E F	A B C D
B R W	B R W r s t w x y	A B C D E F	A B C D
C R W	C R W a b c f g h	A B C D E F	A B C D
D R W	D R W i j k l m n o	A B C D E F	A B C D
E R W	E R W a b c x y z	A B C D E F	A B C D
A R W	A R W e f g h i i	A B C D E F	A B C D
B R W	B R W u v w x y z	A B C D E F	A B C D
C R W	C R W i j k l m n	A B C D E F	A B C D
D R W	D R W f g h x y z	A B C D E F	A B C D
E R W	E R W h i j k l m	A B C D E F	A B C D
A R W	A R W e f g h i i	A B C D E F	A B C D
B R W	B R W p q r s t u	A B C D E F	A B C D
C R W	C R W u v w x y z	A B C D E F	A B C D
D R W	D R W h i j k l m	A B C D E F	A B C D
E R W	E R W f g h i j k	A B C D E F	A B C D

Find your V, S, R, and N scores by starting at the arrow and following the chain of squares. Squares that look like \boxtimes are counted. X's outside of squares are NOT counted. Squares that look like \otimes are NOT counted. Write the number of \boxtimes 's in each heavy box. These are the Right answers. Check each score by starting at the arrow and following the chain of squares to the arrow.

For S and N, count the Wrong answers. These are X's NOT in squares or circles. Start at the arrow and follow the path down the page. Do NOT count squares that look like \otimes or \boxtimes or \otimes . Write the number of X's in the heavy boxes marked Sw and Nw. Subtract the wrong answers from the right answers, and write the number in the S and N boxes. Check your count.

On the other side of this page, check to see if your word meets these requirements:

Begins with the letter s.

Is a complete word or complete abbreviation.

Is NOT a repetition of a preceding word, plural, past tense by adding *ed*, part of a sentence as *sixty-one, sixty-two, sixty-three*.

Count the number of words correctly written. Write this number in the W box.

DIRECTIONS FOR PROFILING

Take your *Profile Sheet*. Write your scores for V, S, R, N, and W in the proper boxes.

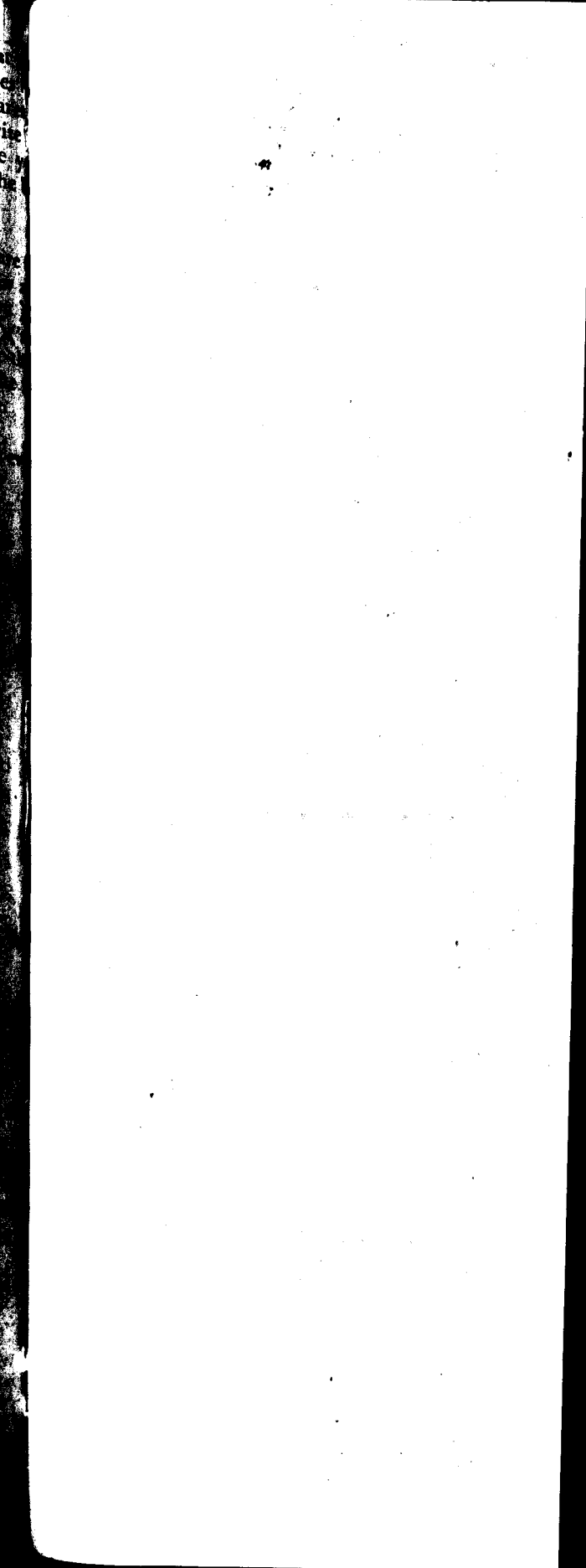
Under V, find the column for your chronological age. Locate the number in this column which is the same as the V score. Make a circle around this number.

Do this for S, R, N, and W.

Draw a horizontal line through the numbers in the V column, the S column, and the R column. Shade each column downward. This is your *PMA Profile*.

Read about your profile on the other side of the *Profile Sheet*.

$\boxed{}$ N_R
 $\boxed{}$ N_w



PRINT

Last

First

Initial

GROUP

AGE

DATE _____

(At last birthday)

VERBAL-MEANING

AGE

11

12

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14

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16

17 OR OVER

PERCENTILES

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SPACE

AGE

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17 OR OVER

PERCENTILES

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REASONING

AGE

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17 OR OVER

PERCENTILES

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WORD-FLUENCY

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17 OR OVER

PERCENTILES

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V + S + 2R + 2N + W - TOTAL

AGE

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17 OR OVER

PERCENTILES

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SRA Primary Mental Abilities (PMA's) tell you your "intellectual self." Your PMA Profile shows your present ability to solve **five important** of mental tasks.

What the *ups* and *downs* on your profile mean:

Each PMA where your score is *above the top dotted line*, you are **high** in that Primary Mental ability.

Your score is *between the two dotted lines*, you are **at average** in that ability.

Your score is *below the bottom dotted line*, you are **low** in that PMA.

People used to think that intelligence was just one thing, and that every person was born with a certain amount of it that remained about the same throughout life. Now we know that intelligence is made up of many different abilities, and that under certain conditions these abilities can be improved.

For most people, you are undoubtedly higher in some PMA's than in others. You should concentrate on activities related to your high PMA's, because you will probably have the greatest chance for success in these. *Higher you already are in a PMA, the more you probably increase your ability to solve problems and do good work of that type through further training and practice.* But you should not neglect the PMA's in which you are low. If you may have more trouble with activities in those areas, you can probably improve yourself through training. Through training your Primary Mental Abilities, you are really *learning how to think better*, which is very important for your success in later life.

The paragraphs below tell you what each score means. For easy reference you may enter your percentile ranks in the boxes located at the right of the paragraphs.

V

VERBAL-MEANING is your ability to **understand ideas** expressed in words. It is needed in activities where you get information by reading or listening. High ability in V is especially useful in such school courses as English, foreign languages, shorthand, history, and science. V is needed for success in such careers as secretary, teacher, editor, scientist, librarian, and executive.

S

SPACE is the ability to think about objects in **two or three dimensions**. Blueprint reading, for example, requires this ability. The designer, electrician, machinist, pilot, engineer, and carpenter are typical workers who need ability to visualize objects in space. S is helpful in geometry, mechanical drawing, art, manual training, radar, physics, and geography classes.

R

REASONING is the ability to **solve logical problems—to foresee and plan**. It is the ability that helps to make inventors, doctors, teachers, executives, statesmen, scientists, and supervisors outstanding. The higher you go in school, the more R you need for success. Understanding science and mathematics takes a lot of R.

N

NUMBER is the ability to **work with figures—to handle simple quantitative problems rapidly and accurately**.

ately. Accountants, cashiers, comptometer operators, bookkeepers, bank tellers, salesclerks, and inventory clerks should be high in N. NUMBER ability is useful for success in business arithmetic, accounting, bookkeeping, and statistics.

W

WORD-FLUENCY is the ability to **write and talk easily**. People to whom words come rapidly and fluently are high in W. Careers requiring W include actor, stewardess, reporter, comedian, salesman, writer, and publicity man. Being high in W should help you in drama classes, public speaking, radio acting, debate, speech, and journalism.

TOTAL

The last score is obtained by adding the PMA scores on the *front* of the profile sheet according to the formula, $V + S + 2R + 2N + W$. Notice that R and N are added twice. This Total score is a **general index** of your present ability to deal with intellectual problems. It should not be considered as the *only* index of your likely success in school or in later life. There are other areas of intelligence which were not measured here. Tests for them would take too long to administer. Other factors, such as your personality, vocational interests, and how hard you work also have an important bearing upon your chances of success.

The *SRA Primary Mental Abilities* are merely a **shortcut** for finding out about your "intellectual self." They help you *to understand yourself better*—and thus to recognize your strengths and weaknesses. They can assist you in planning your school courses, career choices, and leisure activities wisely. The better you know yourself, the more successful and satisfied you can become.

APPENDIX II

TEST, RECORD BLANK, AND SCORING KEY FOR THE DETROIT
ADJUSTMENT INVENTORY, ALPHA FORM OF
"TELLING WHAT I DO"

Det. Ad. Inv.

TELLING WHAT I DO

By Harry J. Baker

Alpha Form for Junior and Senior High Schools

Name _____
First Last Boy Girl Grade

Age _____
Years Months School

City _____ State _____ Date _____

The following exercises have five different answers. Next to the answers are the letters A, B, C, D, and E. You are to put a circle around the letter next to the answer which most nearly fits you.

Some of these things we may know about you already, but we want you to tell us yourself. It is the purpose to help you with any problems you may have.

There is no time limit, but please keep working and do not waste time. Hand in your booklet as soon as you are finished. Please be sure to answer all the exercises.

1. About my health

- A. I am not sick very often.
- B. Being sick does not worry me.
- C. I am never sick.
- D. I don't believe I will ever be well.
- E. My health is only fair.

2. About being thin or fat

- A. I am neither thin nor fat.
- B. I don't mind being a little fat.
- C. They tease me for being very thin.
- D. I don't mind being a little thin.
- E. They tease me for being very fat.

3. About being tall or short

- A. They tease me for being very short.
- B. They tease me for being very tall.
- C. I don't mind being a little short.
- D. I like being a little tall.
- E. I am neither tall nor short.

4. About my skin

- A. My pimples (acne) bother me a lot.
- B. It is nice and clear.
- C. My skin is too oily and shiny.
- D. My few pimples do not bother me.
- E. My skin is too dry and scaly.

5. About my heart

- A. I believe it is about average.
- B. I must avoid hard play.
- C. I never think about it.
- D. The doctor says it is all right.
- E. I can't play at all.

6. About my bed

- A. It is only a couch or cot.
- B. It is a little better than average.
- C. It is just average.
- D. I have a very good bed.
- E. It is very hard, so I don't sleep well.

7. About how I sleep

- A. I always get plenty of sleep.
- B. Noise often keeps me awake late.
- C. I usually get about enough sleep.
- D. I am often short of sleep.
- E. I have many dreams and nightmares.

8. About sleeping alone

- A. I hate having to sleep two in a bed.
- B. I have a bed and room to myself.
- C. We sleep crowded; three or more in a bed.
- D. Two of us sleep together fairly well.
- E. We have separate beds in the same room.

(Go to the next column.)

(Turn to the next page.)

9. About eating together

- A. Eating together goes fairly well.
- B. We don't like eating together very well.
- C. It is pleasant most of the time.
- D. We always have a good time eating together.
- E. Eating is a time to scold and quarrel.

10. About liking foods

- A. I like most kinds of foods.
- B. I eat mostly cake and candy.
- C. I enjoy all kinds of foods.
- D. I have to be careful about what I eat.
- E. I always get angry if food is not just right.

11. About my face and hands

- A. I am sometimes praised for having them clean.
- B. It is quite hard to be always cleaning them.
- C. They are usually quite dirty.
- D. I am rather proud to have them usually clean.
- E. They are just about average.

12. About my hair.

- A. I think others admire it.
- B. I am rather proud of it.
- C. I keep it as good as others do.
- D. I worry because it never looks nice.
- E. They often make fun of it.

13. About my clothes

- A. They never seem to look well.
- B. I dress as well as my playmates.
- C. I set a good example about my clothes.
- D. I am often praised about my clothes.
- E. They don't fit very well.

14. About my teeth

- A. I worry because they look bad.
- B. They are just about average.
- C. I take pride in giving them good care.
- D. They bother a little once in a while.
- E. They ache and need fixing.

15. About keeping clean

- A. I do as well as most people.
- B. I keep a very good standard.
- C. I do fairly well some of the time.
- D. I am pretty careless about it.
- E. Others tease me for being too clean.

16. About my fingernails

- A. They just grow and break off.
- B. I worry because I bite them off.
- C. I just can't help biting them.
- D. I usually keep them in fair shape.
- E. I always take good care of them.

(Go to the next column.)

17. About blushing

- A. I boast that I never blush.
- B. I seldom blush.
- C. I often blush a little.
- D. Others sometimes tease me about it.
- E. I worry because I am always blushing.

18. About getting dizzy

- A. I worry because I am often dizzy.
- B. I seldom get dizzy.
- C. I never get dizzy.
- D. It does not bother to be dizzy once in a while.
- E. I grew out of being dizzy.

19. About sitting still

- A. I am always able to sit still.
- B. I can't sit still very often.
- C. I can sit as still as most others do.
- D. I usually can sit still.
- E. I never seem able to sit still.

20. About fainting

- A. I have never fainted.
- B. I faint once in a while.
- C. I faint quite often.
- D. I am no worse than most people.
- E. I sometimes feel like fainting.

21. When my parents are sick

- A. I try to hide my worry.
- B. I worry much of the time.
- C. I help and usually don't worry.
- D. I worry myself sick too.
- E. I am sure they will get well.

22. About the world coming to an end

- A. I never think about it.
- B. I worry once in a great while.
- C. It bothers me sometimes.
- D. I don't worry; can't do anything about it.
- E. I worry about it much of the time.

23. About daydreaming

- A. I worry because I daydream most of the time.
- B. I never daydream at all.
- C. My daydreaming does not mean much to me.
- D. I have a few spells of daydreaming.
- E. I seldom do it at all.

24. When I must make up my mind

- A. I worry because I can't do it quick enough.
- B. I worry because I can't seem to do it.
- C. I always do it right away.
- D. I am as quick as others about it.
- E. I can do it after a while.

(Go to the next page.)

- A. It worries me very much.
- B. I worry a little more than I should.
- C. I can laugh too, with them.
- D. I am like others are about it.
- E. I usually don't worry about it.

26. About thunderstorms

- A. I enjoy them.
- B. I sometimes get scared.
- C. I try not to be afraid.
- D. I don't pay much attention.
- E. I am always very scared.

27. About being alone in the dark

- A. I try not to be scared.
- B. I try not to think about it.
- C. It never scares me at all.
- D. I am sometimes scared a little.
- E. I am probably scared quite badly.

28. When I am up in a high place

- A. I am all right if I try hard.
- B. I get scared and want to jump.
- C. I am probably more scared than I would admit.
- D. I know I am a little scared.
- E. It does not bother me at all.

29. When I meet a stranger alone

- A. I am often quite scared.
- B. I never let it bother me.
- C. Most of them are probably all right.
- D. It is hard not to be a little scared.
- E. Probably a little scared; won't admit it.

30. When I must recite

- A. I have a little stage fright.
- B. I usually don't mind it.
- C. I get along about as well as the others.
- D. I usually get scared.
- E. I always enjoy it.

31. About temper tantrums

- A. I have tantrums once in a while.
- B. I often get angry but no tantrums.
- C. I have tantrums quite often.
- D. I never have tantrums or get angry.
- E. I get a little angry sometimes.

32. When I break some of my things

- A. I know it is my own fault.
- B. I get very angry at myself.
- C. I am more careful next time.
- D. I believe it is just my poor luck.
- E. It is hard not to get angry.

(Go to the next column.)

- A. I hurt them right back.
- B. I ask them nicely not to do it again.
- C. I think they did not mean to do it.
- D. I try to avoid them next time.
- E. I just don't seem to notice it.

34. When someone breaks my things

- A. I try not to be upset.
- B. I ask them to be more careful.
- C. I think it was just an accident.
- D. I break something for them.
- E. I try to stay away from them.

35. When others are getting hurt

- A. I don't like to have it happen.
- B. I sometimes try to stop it.
- C. It is hard not to get angry.
- D. It is probably none of my business.
- E. I get angry and fight for them.

36. About blind people

- A. I am glad if others help them.
- B. I just go on because they can't see me.
- C. I pretend I did not see them.
- D. I think they will be all right by themselves.
- E. I am glad to help them myself.

37. When I get hurt

- A. I am seldom sorry for myself.
- B. I just reason it out.
- C. I am glad when others pity me.
- D. I feel very sorry for myself.
- E. I am sometimes a little sorry for myself.

38. When I see crippled people

- A. I just don't seem to notice them.
- B. I hope others will help them.
- C. I always try to help them.
- D. I sometimes want to help them.
- E. I try to avoid them.

39. When I see helpless old people

- A. I sometimes pity them a little.
- B. I probably pay no attention to them.
- C. I hope they are cared for.
- D. I always want to help them.
- E. I often pity them.

40. When I see poor people

- A. I hope things will get better.
- B. I help them all I can.
- C. I am not sorry; it's their fault.
- D. I don't think much about it.
- E. I hope others will help them.

(Turn to the next page.)

41. About being in a crowd

- A. I always enjoy it.
- B. Like it some, once in a while.
- C. Usually don't like it.
- D. I find excuse to get away.
- E. Neither like nor dislike it.

42. About talking to friends

- A. I sometimes like to talk a little.
- B. I always like to do my share of talking.
- C. I don't care whether I talk or not.
- D. I never talk much.
- E. I hope they do the talking.

43. About going to parties

- A. I like them very much.
- B. I never go to any.
- C. I don't care much for them.
- D. I don't mind once in a while.
- E. I go only when urged.

44. About helping people get acquainted

- A. I always try to avoid it.
- B. I do very little about it.
- C. I always help them get acquainted.
- D. I like to do it sometimes.
- E. I believe they have met before.

45. About being shy when in a crowd

- A. I am never shy in a crowd.
- B. I don't think much about it.
- C. I am always very shy.
- D. I am usually quite shy.
- E. I am probably a little shy.

46. About the way I dress

- A. I usually am fairly happy about it.
- B. I don't think much about it.
- C. Sometimes I am a little ashamed.
- D. I feel ashamed most of the time.
- E. I am always proud of my clothes.

47. About being homely or good-looking

- A. I am usually happy about my looks.
- B. I am quite happy about my good looks.
- C. I believe I am average in looks.
- D. It worries me because I am homely.
- E. Little homely but try not to worry.

48. About my school marks

- A. It's not my fault that they are poor.
- B. I am quite ashamed of my poor marks.
- C. I am very proud of my school marks.
- D. They are just average.
- E. I am usually happy about my school marks.

(Go to the next column.)

49. About getting on school teams

- A. I am proud to be on them.
- B. I enjoy being on them.
- C. I am not among the few who get on.
- D. It worries me very much that I don't make them.
- E. I worry a little not to make them.

50. About being popular

- A. I worry because I am not popular.
- B. I am happy and proud to be popular.
- C. I am just about like most others.
- D. It is nice to be a little popular.
- E. I am not popular, but it does not worry me.

51. About ever becoming a leader

- A. I am going to do what I can.
- B. My chances are rather poor.
- C. I have high hopes for it.
- D. I know I never will.
- E. I probably have a chance.

52. About ever getting rich

- A. I am quite hopeful that I will be rich.
- B. I expect to be neither rich nor poor.
- C. I hope I will not be very poor.
- D. I would like to be a little rich sometime.
- E. I will probably be quite poor.

53. About being happy or sad

- A. I am a little sad sometimes.
- B. I am quite unhappy most of the time.
- C. I am about average.
- D. I am always very happy.
- E. I am quite happy sometimes.

54. About getting a job

- A. I worry that I will never get one.
- B. I am very sure I will get one.
- C. It's no use worrying if I don't.
- D. I think my chances are pretty good.
- E. I think my chances are only fair.

55. About the future of the world

- A. It will probably stay about as it is.
- B. I hope it will not get too bad.
- C. I hope it will get some better.
- D. I am sure it will get much better.
- E. I think it is very dark.

56. About studying at home

- A. It is always easy to let it slide.
- B. I have to try hard to do it.
- C. I do it just fair.
- D. It is easy to do; I like it.
- E. I find excuses not to do it.

(Go to the next page.)

57. About eating too much
A. I never eat too much.
B. I always eat too much.
C. I try hard not to eat too much.
D. I eat as everybody else does.
E. I find many excuses to eat all I want.

58. About controlling my fears
A. I try, but without much success.
B. I have few or none; easy to control.
C. I just can't control them.
D. I don't have very many fears.
E. I can usually do it fairly well.

59. About doing right
A. I go along as most people do.
B. I often find excuses for not doing right.
C. I must try to make myself do right.
D. It is always easy to do right.
E. I often don't do right.

60. About making up my mind
A. It is easy to do some of the time.
B. I want to do it myself but seldom do.
C. It is always easy to do.
D. It is neither easy nor hard.
E. I just let others do it for me.

61. About speaking English at home
A. My parents speak English fairly well.
B. My parents don't speak much English.
C. No one speaks much English in our home.
D. We all speak English all the time.
E. We speak English only part of the time at home.

62. About owning our home
A. Our home is partly paid for.
B. It is paid for, or nearly all.
C. We pay rent but seldom move.
D. We all have to live with other relatives.
E. We rent and move often.

63. About the health of my parents (or step-parents)
A. Both are sick most of the time.
B. One is sometimes sick.
C. They are well most of the time.
D. Both are always very well.
E. Father often sick; can't work much.

64. About father (or stepfather) working
A. He would like to work but is not able.
B. He works most of the time.
C. He always has a steady job.
D. He works about half the time.
E. He has been out of work a long time.

(Go to the next column.)

65. About the houses on our street
A. I think they are fairly good.
B. I like them very much.
C. Most of them are rather poor.
D. I think the houses are all very poor.
E. Houses are not as nice as where we used to live.

66. About holiday parties and birthday parties
A. We have very few parties.
B. We never have any parties.
C. Our parties always get too wild.
D. We often have nice parties.
E. We have many very nice parties.

67. About books and magazines at home
A. They are too high-brow for me.
B. They are good; I enjoy them.
C. I don't care much about any of them.
D. The ones we have are not very good.
E. We don't have hardly any at all.

68. About my parents spending time with me
A. They never do anything with me.
B. We go out together once in a while.
C. We go out together quite often.
D. It's a very long time since they did.
E. They don't do much with me but let me go.

69. About my parents' friends
A. They are all very nice.
B. My parents have almost no friends.
C. I neither like nor dislike them.
D. I think they are just about average.
E. I usually don't like them.

70. At home we are
A. Always cheerful and happy.
B. Often sad and rather unhappy.
C. Always gloomy and unhappy.
D. Usually cheerful and happy.
E. Neither sad nor happy.

71. About getting along with my brothers and sisters
A. I have no brothers or sisters.
B. We argue sometimes.
C. It goes fairly well most of the time.
D. We argue and fight all the time.
E. We always get along very well.

72. About my parents punishing me
A. They are fair but firm.
B. I get treated like everyone else.
C. It varies from easy to strict.
D. They are always too strict.
E. They are always too easy on me.

(Turn to the next page.)

- A. My parents are too easy about it.
- B. They are fair, but expect me to do it.
- C. It goes along about average.
- D. They vary from easy to strict.
- E. Both are a little too strict.

74. About being the favorite child

- A. The others think I am the favorite.
- B. One of the others is the favorite.
- C. We are all treated alike.
- D. I have no brothers or sisters.
- E. There is only a little jealousy.

75. About my parents watching me

- A. They are always watching me.
- B. They don't pay as much attention as they should.
- C. They know they can trust me.
- D. I am as well off as others.
- E. They check up once in a while.

76. About being allowed to do things

- A. I probably have too much liberty.
- B. Most of my friends have more liberty.
- C. I have about as much liberty as my friends.
- D. I have a reasonable amount of liberty.
- E. I am not allowed to do anything at all.

77. About feeling awkward

- A. I am a little awkward sometimes.
- B. I am getting over being all arms and legs.
- C. I have never been awkward.
- D. I am about like my friends in awkwardness.
- E. Lately I seem to be all arms and legs.

78. About my thinking I am grown up

- A. I am getting quite a good start.
- B. I just don't seem to be grown up at all.
- C. I am not grown up except about a few things.
- D. I am sort of in-between.
- E. I am quite well grown up now.

79. About arguing with my parents

- A. We argue about everything all the time.
- B. We seldom have arguments.
- C. We never have any arguments.
- D. We argue about quite a few things.
- E. It is just fair.

80. About deciding for myself when younger

- A. No one did much about it.
- B. I was allowed to decide some things.
- C. Once in a while I decided something.
- D. They always decided everything for me.
- E. They usually let me decide many things.

(Go to the next column.)

- A. I have done it a few times.
- B. I did it once or twice.
- C. I mark them quite a lot.
- D. I have never done it.
- E. I sometimes want to, but don't do it.

82. About liking my school duties

- A. I like them all very much.
- B. I don't like any of them.
- C. I try to make myself like them.
- D. I like some and dislike others.
- E. I dislike most of them.

83. About talking and whispering in class

- A. I do it quite a lot.
- B. I don't do it but often want to.
- C. I never talk except to recite.
- D. I do it in one or two classes.
- E. I sometimes do, to answer others.

84. About liking my teachers

- A. It's about even on likes and dislikes.
- B. I like most of them.
- C. I like all of them.
- D. I don't like any of them very much.
- E. I dislike most of them.

85. About being truant from school; that is, being absent without permission

- A. I have never wanted to be truant.
- B. I have been truant several times alone.
- C. I go when others ask me to.
- D. I sometimes feel like it, but never do.
- E. I go and get others to go.

86. When we lose a game

- A. We must expect to lose sometimes.
- B. I sometimes get real angry about it.
- C. It's hard not to get angry.
- D. I think it's just our bad luck.
- E. We try harder next time.

87. About taking my turn at play

- A. I don't mind being among the last.
- B. I am glad to take my turn any place.
- C. I am willing to do what the others do.
- D. I see to it that I am among the first.
- E. It bothers me some to be among the last.

88. About playing according to (by) the rules

- A. I just play them to suit myself.
- B. I do as well as the others do about them.
- C. I am glad to play by the rules.
- D. I think most of them are all right.
- E. I get away with as much as I can.

(Go to the next page.)

89. About starting games

- A. I can do it but don't like to.
- B. I never start them.
- C. I sometimes do it when I am asked.
- D. I start them most of the time.
- E. I sometimes do it myself.

90. About sharing my things with others

- A. I guess it works both ways.
- B. I always share gladly.
- C. I usually don't like to share with others.
- D. I refuse even when asked.
- E. I share with others quite often.

91. About giving to charity

- A. I always give all I can.
- B. I often give a little.
- C. I give only when I am made to.
- D. I never give; don't have enough myself.
- E. I give once in a while.

92. About taking more than my share

- A. I try not to take more than my share.
- B. I never take more than my share.
- C. I do like most people do.
- D. I do it whenever I can.
- E. I don't; I might get caught.

93. When I borrow something

- A. I pay it back right away.
- B. I hope they will forget about it.
- C. It soon slips my mind.
- D. I pay it back after a while.
- E. I pay back if asked to.

94. If there is a question of right or wrong

- A. If wrong is easier, I do it.
- B. I don't try very hard to do right.
- C. I always try to do right.
- D. I intend to do right, but sometimes don't.
- E. I do what the others do.

95. About telling the truth

- A. I always tell the truth.
- B. I intend to tell the truth.
- C. I have a poor reputation.
- D. I am sometimes careless about it.
- E. I do fairly well.

96. About traffic tickets

- A. No tickets, but some warnings.
- B. I don't drive a car.
- C. I have had one or two tickets.
- D. I have had quite a few.
- E. I drive but never had a ticket.

(Go to the next column.)

97. About teasing little children

- A. I try hard not to tease them.
- B. I never hurt or tease them.
- C. I don't, if they keep out of my way.
- D. I guess I like to tease them.
- E. I tease them but don't mean to.

98. About running away from home

- A. I ran away once.
- B. I ran away several times.
- C. I never wanted to.
- D. I went once, but came right back.
- E. I thought about it, but never did.

99. About taking other people's things

- A. I never take anything.
- B. I sometimes take them.
- C. They suspect me sometimes.
- D. It is easy just to help myself.
- E. I always expect to give it back.

100. About probation or detention home

- A. Have had both quite a few times.
- B. Never had either.
- C. On probation once; never in detention home.
- D. Was taken once to be questioned.
- E. Have had both once or twice.

101. About my parents and my friends

- A. They get along fairly well.
- B. Most of my friends don't like my parents.
- C. My parents trust me out with my friends.
- D. They always try to choose my friends.
- E. They let me choose some of my friends.

102. About my friends and pals

- A. They are all very good.
- B. They are just about average.
- C. I hope they are not bad.
- D. I believe that most of them are good.
- E. I am afraid most of them are rather bad.

103. About the number of friends I have

- A. I have only one or two.
- B. I don't seem to have hardly any.
- C. I have a few only.
- D. I have many friends.
- E. I am fairly well fixed for friends.

104. About making new friends

- A. It is very hard for me to do.
- B. I like to make new friends.
- C. I can do it but don't like to.
- D. A little hard, but I like to do it.
- E. It is neither easy nor hard.

(Turn to the next page.)

105. About having dates
A. Neither my parents nor I do much about it.
B. I have dates quite often.
C. I believe my parents would not let me.
D. I am too young for dates.
E. My parents leave it up to me.

106. About boxing

- A. I would dislike it very much.
B. I might do it but would not like it.
C. I don't care much about it.
D. I like to box very much.
E. I am quite interested in it.

107. About reading the sporting page

- A. I always read it.
B. I never look at it.
C. I read it nearly every day.
D. I don't pay much attention to it.
E. I read it once in a while.

108. About liking to go hunting

- A. I might do it but would not like to.
B. I would like it very much.
C. I would not like it at all.
D. I never thought much about it.
E. I would probably like it a little.

109. About reading the fashion page

- A. Usually I would not read it.
B. I read it almost every day.
C. I would not unless something very unusual.
D. I would not even look at it.
E. I always read it.

110. About what I like to read

- A. I like mystery and adventure best.
B. Mostly about family and home.
C. I like Wild West stories best.
D. I like all kinds of stories.
E. I like love stories best.

111. About my hobbies

- A. I have several; mostly alone with them.
B. I spend a little time on hobbies.
C. I don't have any at all.
D. We share many hobbies together at home.
E. I have as many as my friends do.

112. About the movies

- A. I learn a few useful things from them.
B. I get ideas from them for my hobbies.
C. Sometimes I learn a little from them.
D. I go just for something to do.
E. I go just for a good time.

(Go to the next column.)

113. About reading books and magazines
A. I don't read hardly any at all.
B. I read the movie magazines.
C. I read mostly Collier's, Saturday Evening Post, or Reader's Digest.
D. I read only good fiction or novels.
E. I read mostly Wild West or love stories.

114. About listening to the radio

- A. I listen to all the exciting adventures.
B. We listen to lots of the best music.
C. I pick out a few good programs.
D. I listen a little to different things.
E. I don't pay much attention to it.

115. About going to dances

- A. I think I will like it later on.
B. I am too young except for school dances.
C. My parents don't pay much attention.
D. I often go to public dances.
E. I will never want to dance.

116. About deciding what work (job) I will do

- A. I keep changing my mind.
B. I still don't have any idea.
C. I do some thinking about it.
D. I feel fairly sure about it.
E. I have already made up my mind.

117. About helping me decide my vocation

- A. I sometimes listen to a little advice.
B. I am going to decide for myself.
C. No one is doing much about it.
D. My friends think they know what is best for me.
E. My parents are deciding for me.

118. About seeing people work at jobs I like

- A. I have never seen anything that appeals.
B. They were poor workers; I could do better.
C. I have seen both good and poor workers.
D. I have seen only good workers.
E. I don't know whether they are good or poor.

119. In helping to decide my vocation (job)

- A. I have read and talked about it.
B. No one gives me much help with it.
C. I have read a little about it.
D. I have talked to some workers about it.
E. I have never found out anything about it.

120. About my chances of success

- A. I am sure I will succeed.
B. I don't have much idea about it.
C. I am just trusting to luck.
D. I think I have a good chance.
E. My chances are probably fair.

(Go back over each page to make sure you have indicated your response to each exercise. Then hand in your booklet.)

RECORD BLANK AND SCORING KEY DETROIT ADJUSTMENT INVENTORY

(Alpha Form of "Telling What I Do")

WEIGHTED

Responses

1's

2's

3's

4's

5's

Total

Name _____ Sex _____ Grade _____
First Last
Age _____ School _____ Date _____
Years Months

Topic

1

2

3

4

5

I. HEALTH

- | | | | | | |
|-----------|--------------------|---------------------|---------------------|---------------------|------------|
| 1. Health | D never well | B sick, not worried | E fair | A not often | C never s |
| 2. Size | E fat and teased | C thin and teased | B little fat | D little thin | A neither |
| 3. Height | B tall and teased | A short and teased | C little short | D little tall | E neither |
| 4. Skin | A bothered by acne | C oily and shiny | E too dry and scaly | D acne not bad | B clear |
| 5. Heart | E no play | B no hard play | A average | C never thipk about | D doctor's |

II. SLEEPING - EATING

- | | | | | | |
|-------------|------------------|---------------|---------------|--------------------|------------|
| 6. Bed | A couch or cot | E very hard | C average | B above average | D very go |
| 7. Sleeping | B awake, noise | E many dreams | D often short | C usually fair | A always |
| 8. Alone | C three or more | A hate two | D two, fair | E separate, same | B separat |
| 9. Mealtime | E scold, quarrel | B don't like | A fairly well | C usually pleasant | D always |
| 10. Foods | E angry | B cake, candy | D careful | A like most | C all kind |

III. SELF - CARE

- | | | | | | |
|--------------------|-------------------|---------------------|--------------------|---------------------|-----------|
| 11. Face and hands | C usually dirty | B always hard to do | E average | A sometimes praised | D rather |
| 12. Hair | D worry, poor | E make fun of | C good as others | A others admire | B rather |
| 13. Clothes | A never look well | E don't fit | B good as others | C good example | D often p |
| 14. Teeth | E ache | A looks worry | D little bother | B average | C pride i |
| 15. Body | D careless | C fair sometimes | E teased too clean | A well as others | B good st |

IV. HABITS

- | | | | | | |
|-------------------|----------------------|--------------------|----------------------|---------------------|----------|
| 16. Nails | B worry, bite | C can't help | A just break | D fair shape | E always |
| 17. Blushing | E worry, always | D sometimes teased | C often blush | A boast never blush | B seldom |
| 18. Dizzy | A worry, often dizzy | D not bothered | E grew out of it | B seldom | C never |
| 19. Sitting still | E never able | B usually not | C average | D usually can | A always |
| 20. Fainting | C quite often | B once in a while | E at times feel like | D average | A never |

V. WORRIES

- | | | | | | |
|------------------|---------------------|---------------|-------------------|---------------------|-----------|
| 21. Parents ill | D worry self sick | B worry much | A hide worry | C usually don't | E get we |
| 22. End of world | E worry much | C sometimes | B once in a while | D can't do anything | A never |
| 23. Daydreaming | A most of the time | D few spells | C means little | E seldom | B never |
| 24. Make up mind | B worry can't do | A not quickly | D quick as others | E after a while | C right a |
| 25. Laugh at me | A worries very much | B worry some | D average | E usually not worry | C laugh |

VI. FEARS

- | | | | | | |
|--------------------|----------------------|-----------------------|---------------------|----------------------|------------|
| 26. Thunderstorms | E always scared | B sometimes scared | C try not be scared | A enjoy them | D little a |
| 27. Alone in dark | E badly scared | A try not | D scared little | B don't think about | C never |
| 28. High place | B want to jump | C more than admit | D little scared | A all right if try | E not bo |
| 29. Stranger alone | A often quite scared | D little scared | E won't admit | B not bothered | C probab |
| 30. Beasts | D usually scared | A little stage fright | C like others | B usually don't mind | E always |

ANGER

ums	C often	A once in a while	B angry only	E little sometimes	D never
ak my things	B angry at self	E hard not to	D poor luck	C more careful	A own fault
one hurts me	A hurt back	D avoid	E not notice	B ask them not to	C did not mean to
break my	D break theirs	E stay away	A try not upset	B ask more careful	C an accident
s					
s are hurt	E fight for them	C try not to be angry	B try to stop	D not my business	A don't like

PITY

	B can't see me	C pretend don't see	D all right alone	A others help	E glad to help
urt	D sorry for self	E little sorry	C glad others pity	A seldom sorry	B reason it out
les	A don't notice	E avoid	B others help	D sometimes help	C try to help
people	B no attention	A little pity	C hope cared for	E often pity	D want to help
people	C their fault	D don't think much	A hope better	E others help	B help all I can

GOOD MIXER

rowd	D get away	C usually dislike	E neutral	B like sometimes	A always enjoy
ng to friends	D never much	E hope they talk	C don't care	A sometimes	B always like
es	B never go	E when urged	C don't care much	D sometimes	A like much
e acquainted	A try to avoid	B do little	E met before	D like sometimes	C always help
n a crowd	C always shy	D usually shy	E probably a little	B don't think much	A never shy

INFERIOR - SUPERIOR

s	D usually ashamed	C little ashamed	B don't think much	A fairly happy	E always proud
s	D worry, homely	E try not to worry	C average	A usually happy	B quite happy
pl marks	B quite ashamed	A not my fault	D average	E usually happy	C very proud of
pl teams	D worried not make	E little worry	C not among few	B enjoy them	A proud to be on
g popular	A worry	E do not worry	C average	D little popular	B happy to be

OPTIMISM - PESSIMISM

g leader	D know never will	B chances poor	E chances fair	A do what I can	C high hopes
g rich	E quite poor	C not very poor	B neither	D little rich	A quite hopeful
y or sad	B usually unhappy	A little sad	C average	E sometimes happy	D always happy
ng a job	A worry never get	C no use worry	E fair chances	D pretty good	B sure to get
d's future	E very dark	B not get too bad	A stay same	C hope some better	D much better

WILL POWER

e study	A easy to let slide	E find excuses	C just fair	B try hard	D easy to do
g too much	B always do	E many excuses	D like others	C try hard	A never do
rolling fears	C can't do	A try, no success	D not many	E fairly well	B easy to control
g right	E often don't	B find excuses	A like others do	C must try	D easy to do
ng up mind	E others do	B seldom do	D neutral	A sometimes easy	C always easy

HOME STATUS

ish	C no English	B parents, not much	E English part time	A mostly English	D all English
ng home	D with relatives	E rent, move often	C rent, seldom move	A partly paid	B all or mostly
nts' health	A both usually ill	E father often	B one sometimes	C mostly well	D always well
er working	E idle long time	A like to, not able	D half time	B most of time	C always steady
es on street	D very poor	C rather poor	E not nice as before	A fairly good	B like very much

HOME ATMOSPHERE

es	B never any	C too wild	A very few	D often nice	E many nice
s, Magazines	E hardly any	D not very good	C don't care	A too highbrow	B good, enjoy
with parents	A never do anything	D long time since	E just let me go	B once in a while	C quite often
nts' friends	E don't like				

XV. HOME ATTITUDES

- | | | | | | |
|----------------------|-------------------|----------------------|----------------------|-------------------|---------------|
| 71. Siblings | D always argue | B argue sometimes | A have none | C fairly well | E always well |
| 72. Punishing | E too easy | C varies | B like others | D too strict | A fair but fi |
| 73. My helping | A too easy | D varies | C average | E too strict | B fair but ex |
| 74. Favorite child | B another is | A others think I am | D have none | E little jealousy | C all alike |
| 75. Parents watching | A always watching | B not much as should | D well off as others | E once in a while | C can trust |

XVI. GROWING UP

- | | | | | | |
|---------------------------|---------------------|---------------------|-------------------|-------------------|--------------|
| 76. Liberty | E not at all | B friends have more | C like my friends | A too much | D reasonable |
| 77. Feeling awkward | E all arms, legs | A little awkward | D like my friends | B getting over it | C never been |
| 78. Being grown up | B don't seem at all | C few things only | D in-between | A quite a start | E quite grov |
| 79. Arguing at home | A all the time | D quite few things | E just fair | B seldom | C never |
| 80. Deciding when younger | D did it all for me | A no one did much | C once in a while | B some things | E many thin |

XVII. SCHOOLS

- | | | | | | |
|---------------------|--------------------|----------------------|-----------------|---------------------|---------------|
| 81. Desks, walls | C mark quite a lot | A few times | B once or twice | E want to but don't | D never did |
| 82. Studies | B like none | E dislike most | D some each way | C try to like | A like all ve |
| 83. Talk, whisper | A quite a lot | D one or two classes | E answer others | B don't but want to | C never exce |
| 84. Liking teachers | D none very much | E dislike most | A about even | B like most | C like all |
| 85. Truant | E go, get others | C go when asked | B go alone | D wanted but didn't | A never war |

XVIII. SPORTSMANSHIP

- | | | | | | |
|-----------------|-----------------|---------------------|------------------|--------------------|--------------|
| 86. Lose a game | B real angry | C hard not to | D just bad luck | A must lose some | E try harder |
| 87. Taking turn | D among first | E last bothers me | C do like others | A don't mind last | B any place |
| 88. Rules | A suit myself | E get away with | B well as others | D mostly all right | C glad to fo |
| 89. Starting | B never start | A can, don't like | C when asked | E do sometimes | D most of th |
| 90. Sharing | C don't like to | D refuse when asked | A both ways | E quite often | B always gl |

XIX. MORALS

- | | | | | | |
|--------------------|--------------------|---------------------|-------------------|--------------------|-------------|
| 91. Charity | D not enough self | C when made to | E once in a while | B often a little | A all I can |
| 92. Taking more | D whenever I can | E might get caught | C like others do | A try not too much | B never do |
| 93. Borrowing | B hope they forget | E pay if asked | C slips my mind | D after a while | A right awa |
| 94. Right or wrong | A wrong, if easier | B don't try hard | E like others do | D intend to | C try to |
| 95. Truth | C poor reputation | D at times careless | E fairly well | B intend to | A always do |

XX. DELINQUENCY

- | | | | | | |
|--------------------------------|------------------|----------------------|----------------------|----------------------|-------------|
| 96. Tickets | D quite a few | C one or two | B don't drive | A just warnings | E none at a |
| 97. Little children | D like to tease | E don't mean to | C don't if out way | A try hard | B never do |
| 98. Truant home | B several times | A once | D once, right back | E just thought about | C never wa |
| 99. Taking things | D easy to do | E expect to repay | C at times suspected | B sometimes do | A never do |
| 100. Probation, detention home | A both few times | E both once or twice | C probation once | D questioned once | B never eit |

XXI. FRIENDS

- | | | | | | |
|------------------|------------------|-----------------------|-----------------|------------------|--------------|
| 101. Parents | D parents choose | B friends don't like | E I choose some | A fairly well | C they trus |
| 102. Type | E mostly bad | C hope not bad | B average | D mostly good | A all very |
| 103. Number | B hardly any | A one or two | C few only | E fairly good | D many fri |
| 104. New friends | A very hard | C can, but don't like | E neutral | D hard but like | B like to do |
| 105. Dates | E left up to me | B quite often | A nothing done | C not let me now | D too youn |

Boxing	A dislikes very much	B do not like	C don't care much	E quite interested	D like very much
Sport page	B never do	E once in a while	D little attention	C nearly every day	A always read
Hunting	C not like at all	A do not like	D never thought	E like a little	B like very much
Fashion page	E always read it	B read every day	A usually not	C no, unless unusual	D would not look at
Reading	E love stories best	B family and home	D all kinds	A mystery, adventure	C Wild West

Boxing	D like very much	E quite interested	C don't care much	B do not like	A dislike very much
Sport page	A always read	C nearly every day	D little attention	C once in a while	B never do
Hunting	B like very much	E like a little	D never thought	A do not like	C not like at all
Fashion page	D would not look at	C no, unless unusual	A usually not	B read every day	E always read
Reading	C Wild West	A mystery, adventure	D all kinds	B family and home	E love stories

III. HOBBIES

number	C none	B little time	E same as friends	A several, alone	D share many
movies	D something to do	E just good time	C learn a little	A few useful	B ideas for hobbies
books, Magazines	A hardly at all	E Wild West or love	B movie magazines	C Collier's, etc.	D fiction and news
radio	E not much atten.	A exciting advent.	D different things	B best music	C few good programs
places					
or younger:	D often public	C parents no att.	E never want to	A like later	B too young
or older:	B too young	A like later	E never want to	C parents no att.	D often public

IV. VOCATIONS

decided	B not yet	C some thinking	A keep changing	D fairly sure	E already decided
deciding	E parents deciding	D friends deciding	C not doing much	A sometimes listen	B decide myself
working workers	A nothing appeals	D only good workers	E may be good or poor	B were poor	C good and poor
ask about	E know nothing about	B I get no help	C read a little	D talked to workers	A read and talk
chances	C trusting to luck	B not much idea	E chances fair	D good chance	A sure to succeed

Sample Score	.....	.....	.....	.....	.....
	× 1	× 2	× 3	× 4	
Weighted Score	.....	.....	.....	.....	.....

Notes:

Comments and Treatment:

APPROVAL SHEET

The thesis submitted by Herbert Lee Sachs has been read and approved by three members of the Department of Psychology.

The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated, and that the thesis is now given final approval with reference to content, form, and mechanical accuracy.

The thesis is therefore accepted in partial fulfillment of the requirements for the Degree of Master of Arts.

May 18, 1951
Date

Frank G. Koller
Signature of Adviser